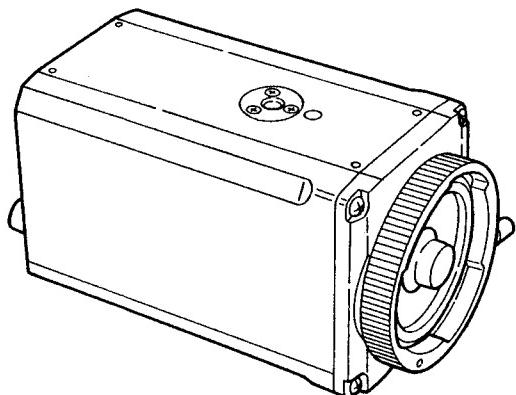


3CCD Color Video Camera

DXC-930/930P DXC-960MD

Revised-1



**SONY®
SERVICE MANUAL**

SAFETY RELATED COMPONENT WARNING

Components identified by shading and  marked on the schematic diagrams and parts list are critical to safe operation. Replace these components with SONY parts whose part numbers appear as shown in this manual or in supplements published by SONY.

Warning—This equipment generates, uses, and can radiate radio frequency energy and if not installed and used in accordance with the instructions manual, may cause interference to radio communications. It has been tested and found to comply with the limits for a Class A computing device pursuant to Subpart J of Part 15 of FCC Rules, which are designed to provide reasonable protection against such interference when operated in a commercial environment. Operation of this equipment in a residential area is likely to cause interference in which case the user at his own expense will be required to take whatever measures may be required to correct the interference.

The shielded interface cable recommended in this manual must be used with this equipment in order to comply with the limits for a computing device pursuant to Subpart J of Part 15 of FCC rules.

For the customers in Canada

This apparatus complies with the Class A limits for radio noise emissions set out in Radio Interference Regulations.

Pour les utilisateurs au Canada

Cet appareil est conforme aux normes Classe A pour bruits radioélectriques, spécifiés dans le Règlement sur le brouillage radioélectrique.

Bescheinigung des Herstellers

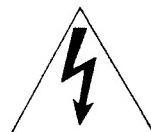
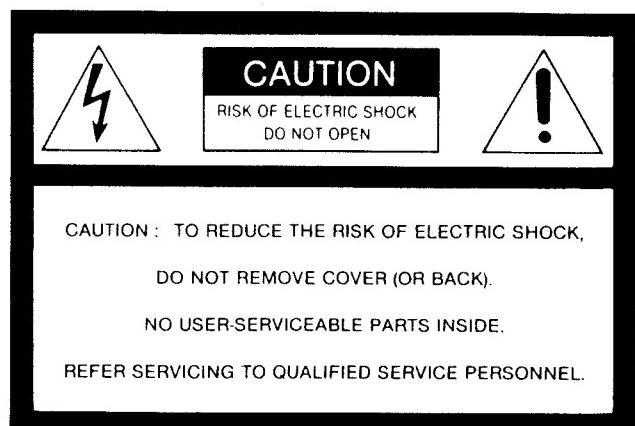
Hiermit wird bescheinigt, daß die CCD-Videokamera DXC-930P in Übereinstimmung mit den Bestimmungen der Amtsblattverfügung Nr. 1046/1984 funkentstört ist.
Der Deutschen Bundespost wurde das Inverkehrbringen dieses Gerätes angezeigt und die Berechtigung zur Überprüfung der Serie auf Einhaltung der Bestimmungen eingeräumt.

Hinweis

Gemäß dem Amtsblatt des Bundesministers für das Post- und Fernmeldewesen Nr. 163/1984 wird der Betreiber darauf aufmerksam gemacht, daß die von ihm mit diesem Gerät zusammengestellte Anlage auch den technischen Bestimmungen dieses Amtsblattes genügen muß.

WARNING

To prevent fire or shock hazard, do not expose the unit to rain or moisture.



This symbol is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.



This symbol is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

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SECTION 1

GENERAL DESCRIPTION

1-1. FEATURES

High picture quality

The DXC-930/930P* 1/2-inch CCD color video camera can produce high quality pictures thanks to adoption of a high performance three-chip CCD pickup having about 380,000 (DXC-930*) or 420,000 (DXC-930P) effective picture elements. Three features of the camera that combinedly ensure high picture quality are:

- High horizontal resolution: 720 TV lines;
- High sensitivity (defined as minimum required illumination): 2,000 lux at f/5.6 (DXC-930*) or f/5 (DXC-930P);
- High signal-to-noise ratio: 58 dB (DXC-930*) or 56 dB (DXC-930P).

Very small size and light weight

Being very small and very light, the camera can be installed easily and safely even in strictly limited spaces where other small-sized video cameras cannot be. This feature makes it possible to use the camera in an inconspicuous manner. The following are some examples of application:

- Installing on ceilings, walls, pillars or other building members of theaters, concert halls, and so on;
- Incorporating in video conference systems;
- Using as a microscopic or endoscopic system component;
- Using as a roof-top weather monitor camera.

Wide range of incident light control

Thanks to its AGC (automatic gain control) and CCD iris control capabilities, the camera can cope with even great variations in the illuminance of the subject to produce clear and sharp pictures. When shooting under low light, the AGC feature automatically increases the video gain up to eight times. When the amount of incident light is excessive, the CCD iris control feature automatically increases the shutter speed to nearly the same effect that the lens iris is narrowed three stops down.

You can use AGC and CCD iris control combinedly with automatic lens iris control. Combined use of AGC and CCD iris control will also be very advantageous when using the camera with a microscopic system.

Electronic shutter to help overcome difficult shooting conditions

A wide speed range electronic shutter function helps you to overcome awkward shooting conditions. It gives you clear pictures of limited blur even when the subject is fast moving, and acceptably bright still pictures of low-illuminated subjects. When set to flickerless mode, the electronic shutter allows you to take flickerless pictures even under fluorescent light. Furthermore, when you use the electronic shutter in Clear Scan™ mode, you can shoot computer screen displays without horizontal stripe noise.

External synchronization

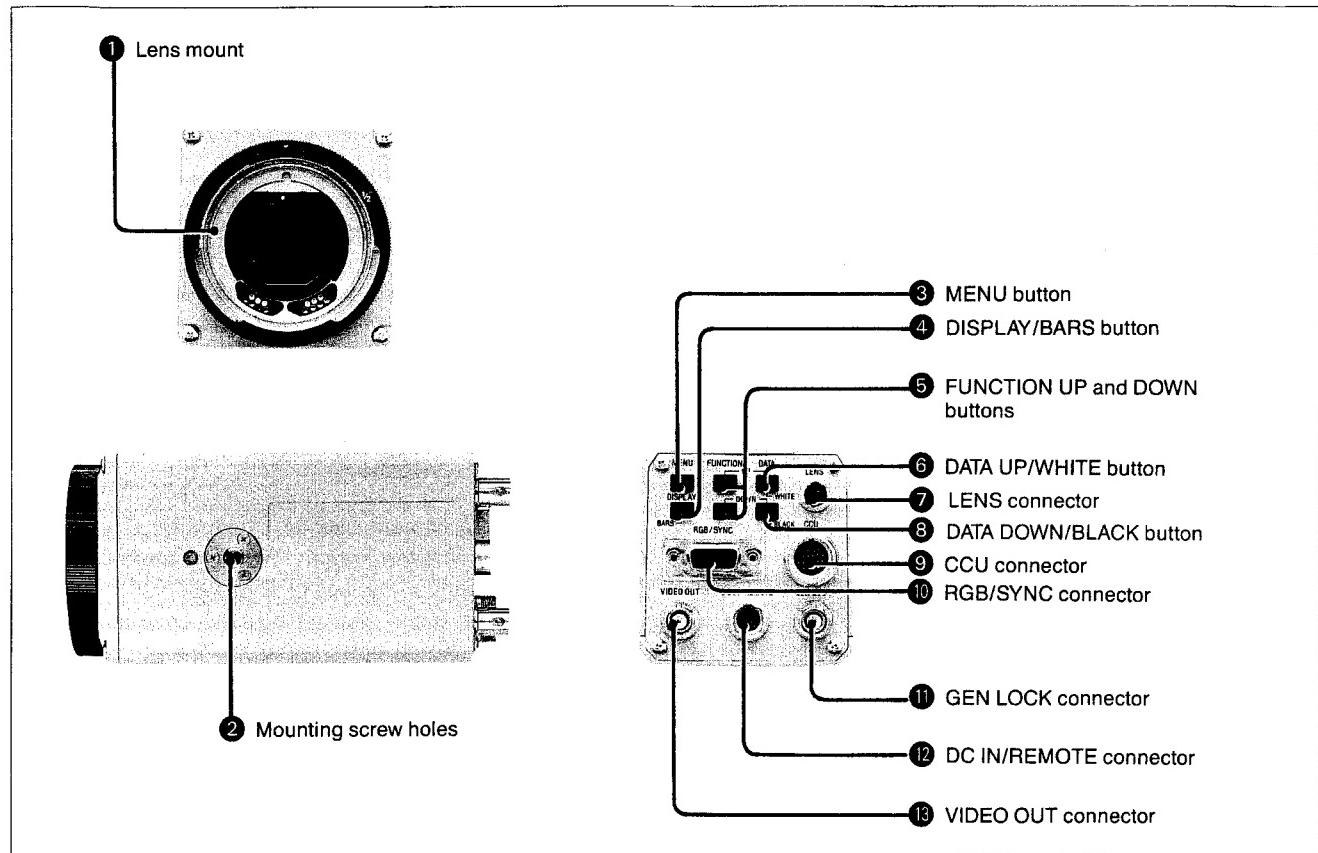
Operation of the camera can be synchronized with an external reference sync signal. When a multi-camera system is built using a number of DXC-930/930P* s, this feature permits video switching and special effect operations to be carried out without involving camera-to-camera variations in picture tone.

Useful interfaces for building a powerful camera system

- Three formats of video output are available (composite, Y/C, and R/G/B) to supply a high quality picture signal to various types of video monitor, VTR, and other video equipment.
- An RM-930 remote control unit (not supplied) can be connected to the camera.
- Connecting a CCU-M3/M3P/M7/M7P camera control unit (not supplied) to the camera will permit picture signal transmission over a long cable line of up to 100 m (328 feet) (for the CCU-M3/M3P) or 300 m (984 feet) (for the CCU-M7/M7P).

* The DXC-930 can be replaced with the DXC-960MD.

1-2. LOCATIONS AND FUNCTIONS OF PARTS



① Lens mount

Attach here an optional zoom lens, microscope adaptor or endoscope adaptor depending on the intended application of the camera.

② Mounting screw holes (one in the top of the camera body and another in the bottom)

To mount the camera on a building wall, ceiling or the like, or on a tripodod, use either of these holes and a U1/4" -20 UNC screw.

③ MENU (menu recall) button

Pressing this button recalls an operational settings menu (called as the menu in this manual; see page 1-16 , which will be displayed on the screen of the monitor connected to the camera. Pressing again the button makes the menu disappear from the monitor screen.

④ DISPLAY/BARS (menu display control/color bars output) button

With the menu displayed: each press of this button switches the number of display lines between 1 and 8.
With the menu not displayed: pressing this button makes the color bars signal be output.

⑤ FUNCTION UP and DOWN (menu scroll) buttons

UP button: scrolls the menu display upwards.
DOWN button: scrolls the menu display downwards.

⑥ DATA UP/WHITE (higher setting selection/white balance adjustment) button

With the menu displayed: changes the setting value for the higher.
With the menu not displayed: activates the automatic white balance adjustment function.

⑦ LENS connector

When using a 2/3-inch zoom lens, connect the lens cable to this connector.

For a 1/2-inch zoom lens, there is no necessity to use this connector.

⑧ DATA DOWN/BLACK (lower setting selection/black balance adjustment) button

With the menu displayed: changes the setting value for the lower.
With the menu not displayed: activates the automatic black balance adjustment function.

⑨ CCU (camera control unit) connector

Connect a camera control unit such as the CCU-M3/M3P/M7/M7P to this connector.

⑩ RGB/SYNC (RGB/sync signal output) connector

Outputs RGB signals and a sync signal for them. Use a CCXC-9DB/CCXC-9DD/CCMC-9DS cable for connection.

Pin assignment



Pin No.	Signal	Pin No.	Signal
1	GND	6	VBS (Y) output
2	GND	7	SYNC output
3	RED output	8	NC
4	GREEN output	9	NC (C output)
5	BLUE output		

⑪ GEN LOCK (reference sync signal input) connector

To make the camera operate in synchronization with a reference sync signal, input that signal to this connector.

⑫ DC IN/REMOTE (DC power input/remote control) connector

Connect a CMA-D1/DICE camera adaptor (not supplied) to this connector.

- Use the CMA-D1 if your camera is the DXC-930* .
- Use the CMA-DICE if your camera is the DXC-930P. This connector is also to be used for connection of an RM-930 remote control unit (not supplied).

⑬ VIDEO OUT (composite video signal output) connector

The camera signal is output from this connector in the form of a composite signal.

* The DXC-930 can be replaced with the DXC-960MD .

Notes on Use

Mounting the lens

Any inappropriate way of mounting the lens may cause damages to both the camera and lens. Read carefully the instructions given in "Mounting the Lens" on page 1-5.

Power supply

Be sure to operate the camera on a 12 V DC power supplied via an appropriate camera adaptor (see page 1-6) or camera control unit (see page 1-10).

Do not disassemble

Do not open the casing. Be careful that touching any internal precision components may damage them.

Keep foreign matters out of the casing

Be careful not to spill water or other liquids on the camera, or not to get flammable or metallic material inside the casing. If used with any foreign matters inside, the camera may fail or be a cause of fire or electric shock.

Keep well ventilated

Do not block air circulation around the camera to prevent internal heat build-up.

Operating or storage location

Avoid operating or store the camera in the following locations:

- Extremely hot or cold locations (see "Specifications" on page 1-21 for operating and storage temperature ranges);
- Damp or dusty locations;
- Where it is exposed to rain;
- Locations subject to strong vibrations;
- Close to generators of powerful electromagnetic radiation such as radio or TV transmitters.

Transporting

When you transport the camera, repack it as it was originally shipped. Do not discard the packing carton. It will afford maximum protection whenever you transport the camera.

Cleaning

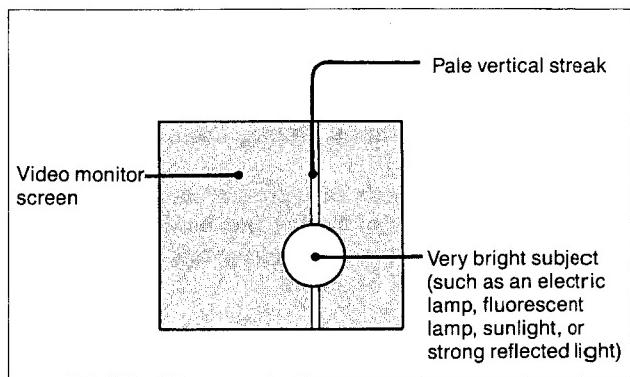
- To clean the external surfaces of the camera, use a soft, dry cloth. For severe stains, use a soft cloth dampened with a small quantity of neutral detergent, then wipe dry.
- Do not use volatile solvents such as alcohol, benzine and thinners; they may damage the surface finish.

Typical CCD Phenomena

Because of the high sensitivity of the CCD image sensors, the following phenomena may appear on the monitor screen while you are using the DXC-930/930P* color camera. These phenomena do not mean that there is anything wrong with the camera.

Vertical smear

This may appear when shooting a very bright subject with most CCD cameras, but only seldom with this DXC-930/930P*.



Aliasing

When shooting fine stripes, straight lines or similar patterns, the shot image may appear jagged.

* The DXC-930 can be replaced with the DXC-960MD.

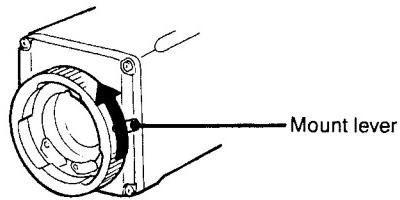
1-3. MOUNTING THE LENS, MICROSCOPE ADAPTOR OR ENDOSCOPE ADAPTOR

Mounting the Lens

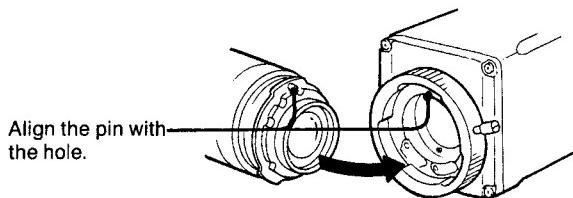
Lenses that can be directly mounted on the camera are of the $\frac{1}{2}$ -inch bayonet mount type only.

To mount a $\frac{2}{3}$ -inch lens, it is necessary to use an LO-32BMT lens mount adaptor (not supplied).

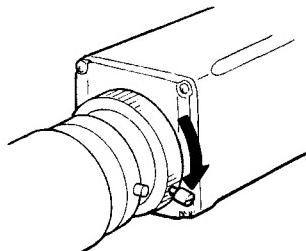
- 1 Turn the mount lever counter-clockwise as far as it will go.
(If the mount cap is in place, remove it.)



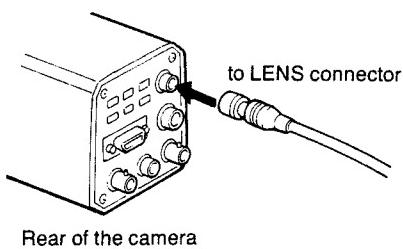
- 2 Aligning the positioning pin on the lens with the matching hole in the lens mount, fit the lens into the lens mount.



- 3 Turn the mount lever clockwise as far as it will go, to lock the lens in the lens mount.



- 4 If the lens is a $\frac{2}{3}$ -inch one, connect the lens cable to the LENS connector of the camera.
(This step is not necessary for $\frac{1}{2}$ -inch lenses.)



Mounting the Microscope Adaptor or Endoscope Adaptor

To attach the camera to a microscope, an operation microscope or an endoscope, it is necessary to mount an appropriate adaptor on the camera. The method for

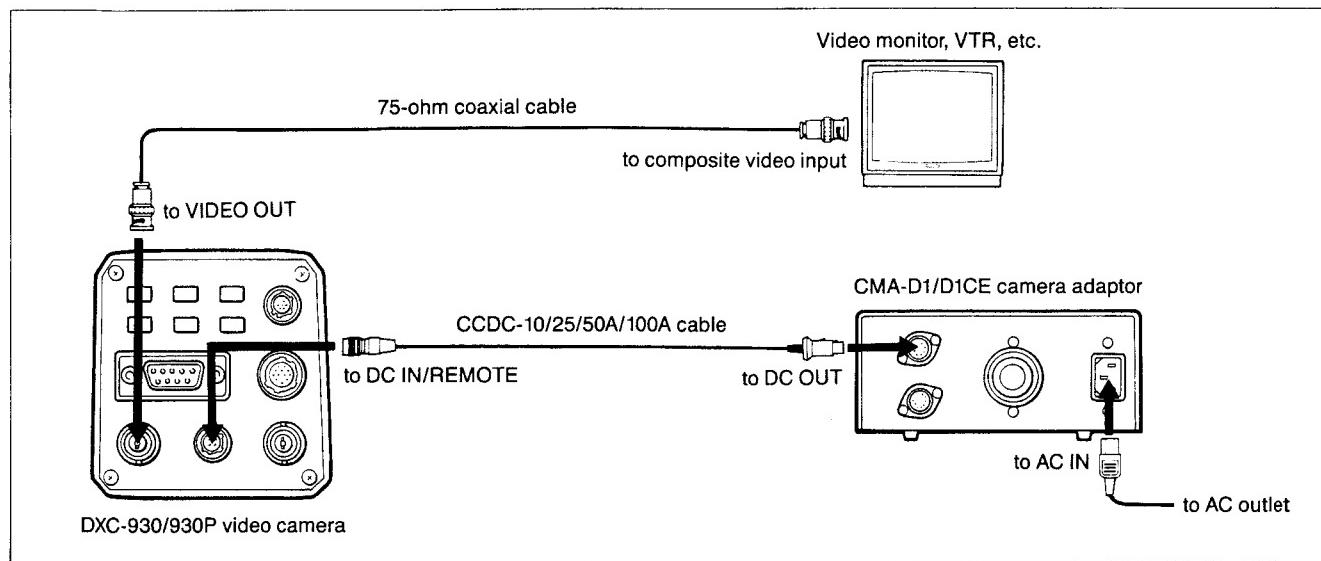
mounting these adaptors is the same as for lenses. Also refer to the manual for the adaptor.

1-4. CONNECTING TO VIDEO EQUIPMENT HAVING A COMPOSITE VIDEO INPUT

To connect the camera to video equipment having a composite video input connector, use the VIDEO OUT connector. To supply power to the camera, use an

appropriate camera adaptor:

- CMA-D1 camera adaptor for the DXC-930*
- CMA-D1CE camera adaptor for the DXC-930P.



Connections using the VIDEO OUT connector

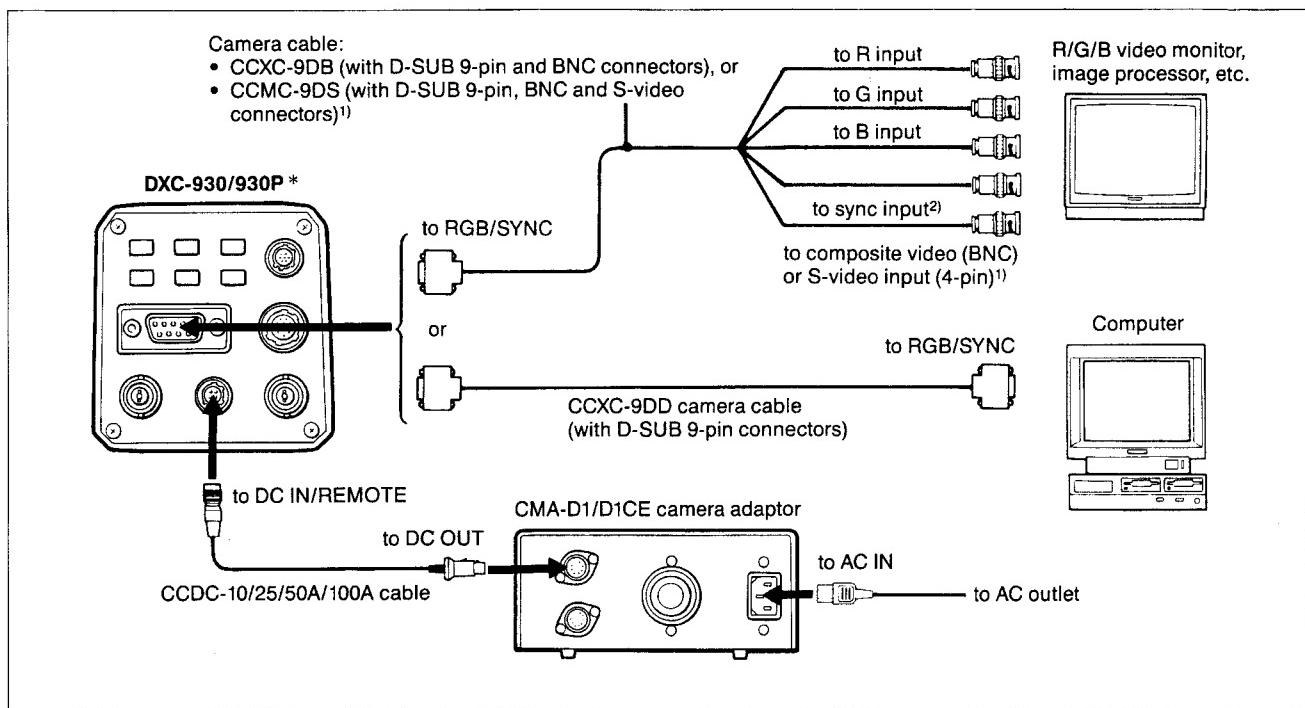
Note on use of camera adaptors

Although the CMA-D1/D1CE camera adaptor has two DC output connectors, the power consumption of the

DXC-930/930P * does not allow two camera units to be connected to a single adaptor at a time. Be sure to use one camera adaptor for each DXC-930/930P * unit.

* The DXC-930 can be replaced with the DXC-960MD.

1-5. CONNECTING TO VIDEO EQUIPMENT HAVING R/G/B OR S-VIDEO INPUTS

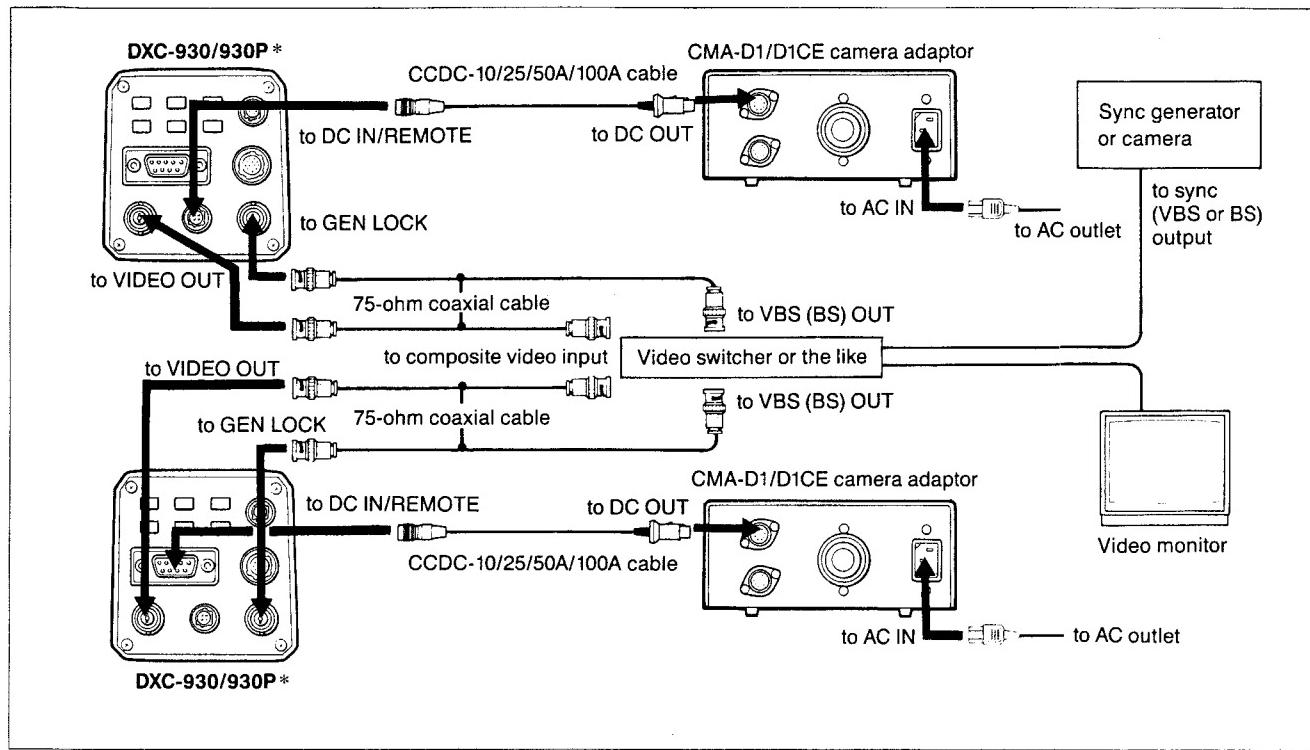


1) To connect separated Y and C signals to the S-video input connector of the video equipment, use a CCMC-9DS camera cable. For switching the camera output between VBS (composite video) and Y/C, see page I-20.

2) When using a video monitor without sync signal input connector, you can make the camera output a sync-added G signal (G.SYNC). For details, see page I-20.

* The DXC-930 can be replaced with the DXC-960MD.

1-6. CONNECTIONS FOR MULTI-CAMERA SYSTEM



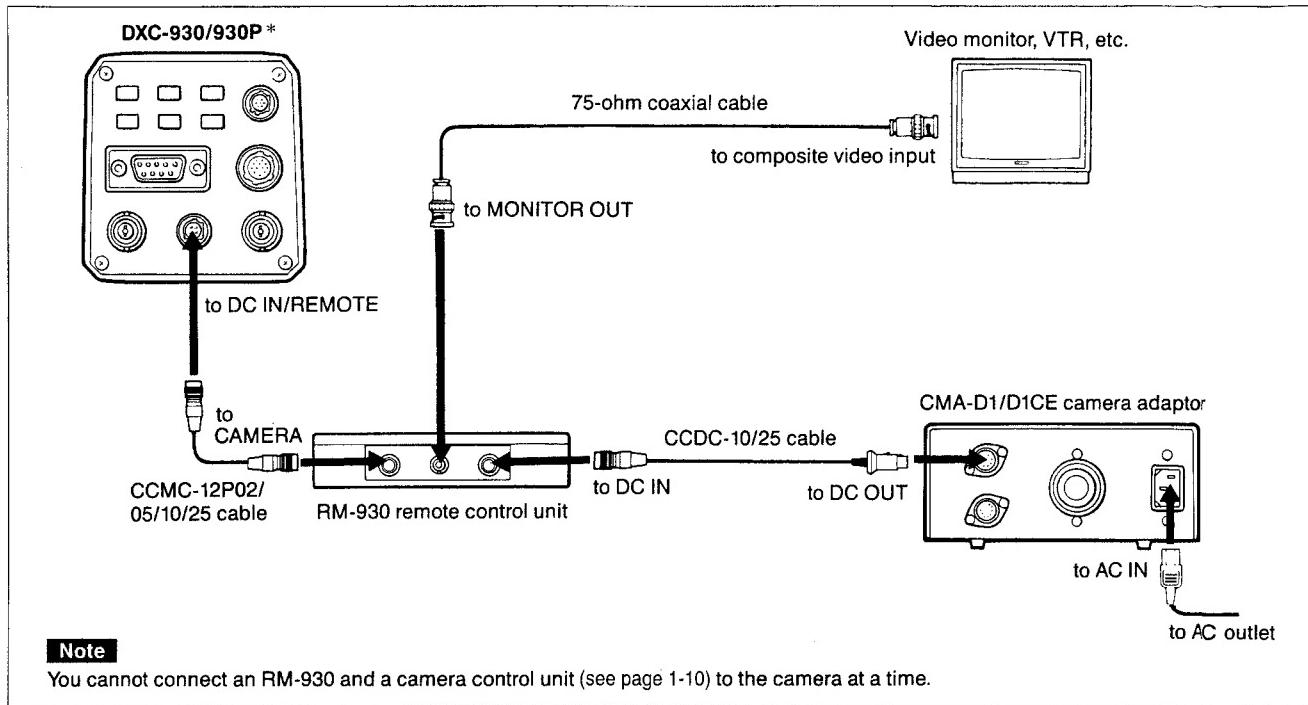
Note on multi-camera systems

When using two or more cameras by connecting to the same video switcher or the like, prevent camera-to-camera variations in picture tone by taking the following two measures:

- Supply the same sync signal to the GEN LOCK connectors of all cameras (see the above figure).
- Adjust the subcarrier and horizontal synchronization phases on all cameras. (For more details, see page 1-15).

* The DXC-930 can be replaced with the DXC-960MD.

1-7. CONNECTING A REMOTE CONTROL UNIT



About the length of the cable line when using the RM-930

The lengths of the CCMC and CCDC cables are:

CCMC- 5: 5 m (approx. 16 ft)

-10: 10 m (approx. 32 ft)

-25: 25 m (approx. 82 ft)

CCDC-10: 10 m (approx. 32 ft)

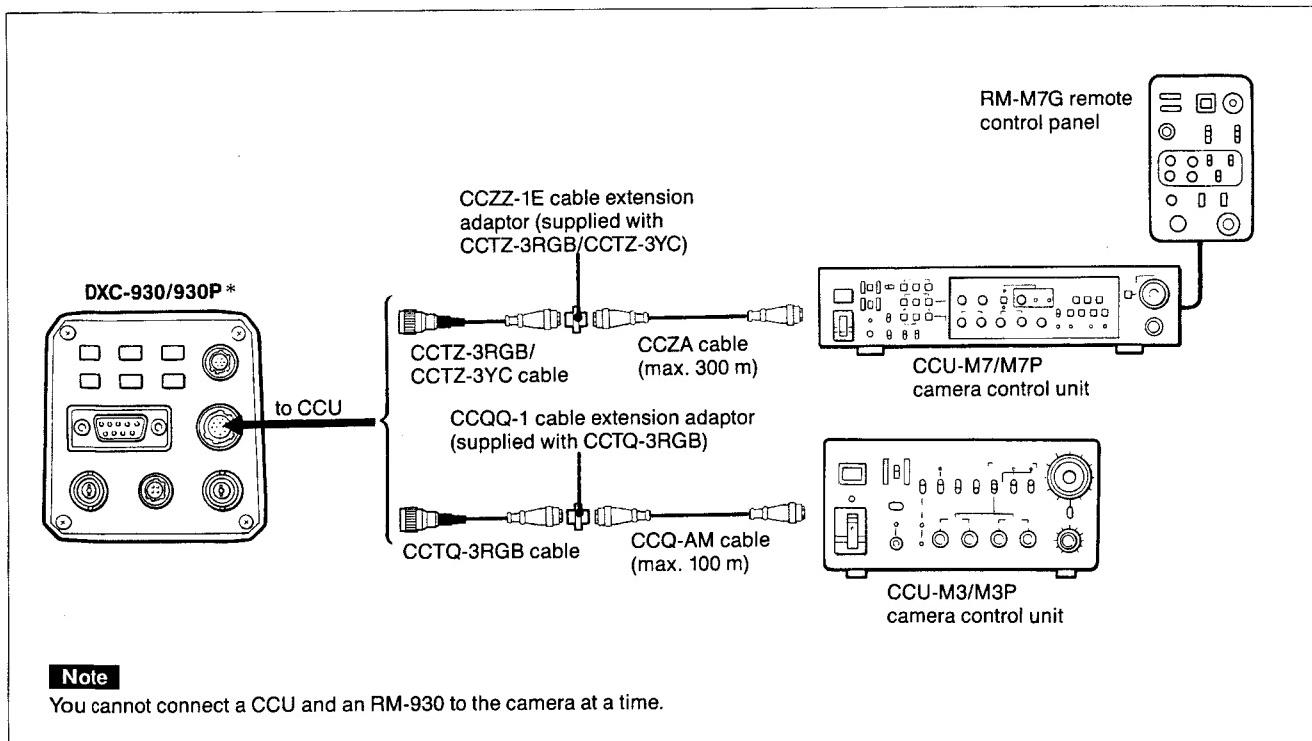
-25: 25 m (approx. 82 ft)

To prevent signal deteriorations, use CCMC and CCDC cables in either of the following combinations in terms of length.

CCMC cable	CCDC cable
CCMC-5	CCDC-10 or -25
CCMC-10 or -25	CCDC-10

* The DXC-930 can be replaced with the DXC-960MD.

1-8. CONNECTIONG A CAMERA CONTROL UNIT AND A REMOTE CONTROL PANEL



When connecting a CCU-M3/M3P

To make video gain control possible, make the following setting on the camera:

GAIN: STEP
STEP: 00 DB

Otherwise, changing the gain level will be impossible on the CCU-M3/M3P.

See page 1-16 for the gain setting procedure.

When connecting a CCU-M7/M7P

To make video gain control possible, make the following settings on the camera:

GAIN: STEP
STEP: 00 DB

Otherwise, changing the gain level will be impossible on the CCU-M7/M7P and only the gain setting on the camera will be effective.

See page 1-16 for the gain setting procedure.

For the CCD iris and electronic shutter, make the following settings on the camera:

CCD IRIS: OFF
SHUTTER: OFF

Otherwise, controlling the electronic shutter will be impossible on the CCU-M7.

To make it possible to change operational settings on the camera

Turn on the CCU while pressing the FUNCTION UP button of the camera. This allows you to use the menu on the camera to change settings for video gain, CCD iris, electronic shutter speed, and other functions not provided on the CCU (page 1-16). To pass the control back to the CCU after changing the settings on the camera, turn off the CCU and then turn it on again.

* The DXC-930 can be replaced with the DXC-960MD.



1-9. INSTALLING THE CAMERA

Installing on a wall or ceiling

To install the camera on a wall or ceiling, use an appropriate support or bracket, and a mounting screw as specified below, which matches both the screw hole in the top and that in the bottom of the camera body.

For more details, consult your authorized Sony dealer.

Mounting on the tripod

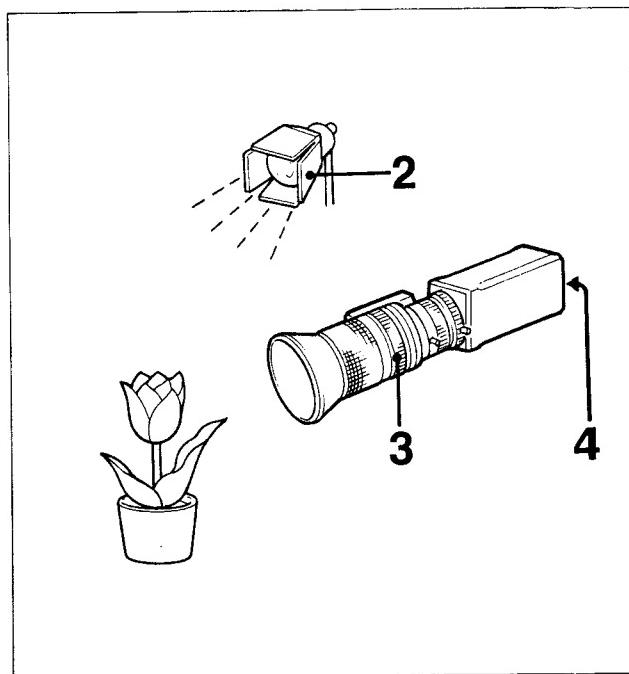
To mount the camera on a tripod, use the screw hole in the bottom of the camera body.

Mounting screw to be used



U1/4"-20 UNC
 $l: 4.5 \pm 0.2 \text{ mm}$ (ISO Standard)
0.197 inches (ASA Standard)

1-10. BASIC SHOOTING PROCEDURE



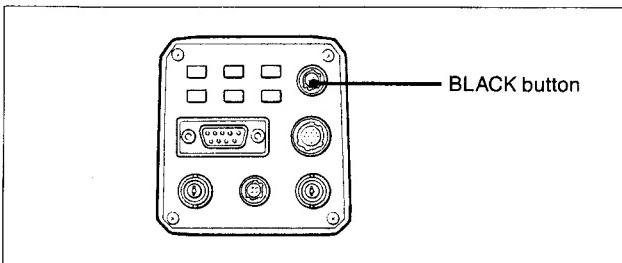
- 1 Turn on the power of the camera and all connected devices.
- 2 Illuminate the subject under proper lighting condition.
- 3 Aim the camera, and adjust the iris, focus and zoom.
- 4 Adjust the black balance and white balance.
- 5 Start the shooting.

1-11. ADJUSTING THE BLACK BALANCE

In the following cases, it is necessary to adjust the black balance so that the lower video level portions of the output image are of correct tones:

- when using the camera for the first time;
- when using the camera after a week or longer period without using it; or
- when using the camera after the temperature has changed dramatically.

The black balance setting is preserved even when you turn off the power, and it is not normally necessary to re-adjust it after you turn on the power again.



- 1 Keep the camera picture displayed on the monitor screen.
 - If the color bars signal is displayed on the screen, press the BARS button to make it disappear.
 - If the menu is displayed on the screen, press the MENU button to make it disappear.

- 2 Press the BLACK button.

Automatic black balance adjustment begins and is accomplished in several seconds. The "BLACK: OK" message appears on the monitor screen, and the adjusted black level is stored in memory automatically.

(Unless re-adjusted, the stored level will be preserved for about 10 years.)

- The iris of the lens is automatically closed when you press the BLACK button, and remains so until the end of the black balance adjustment. If you were manually controlling the lens iris before pressing the BLACK button in step 2, you need to reopen it after adjustment because otherwise it will remain closed.
- During the adjustment the gain control circuit operates, so the monitor screen flickers several times. Note that this is not a fault.

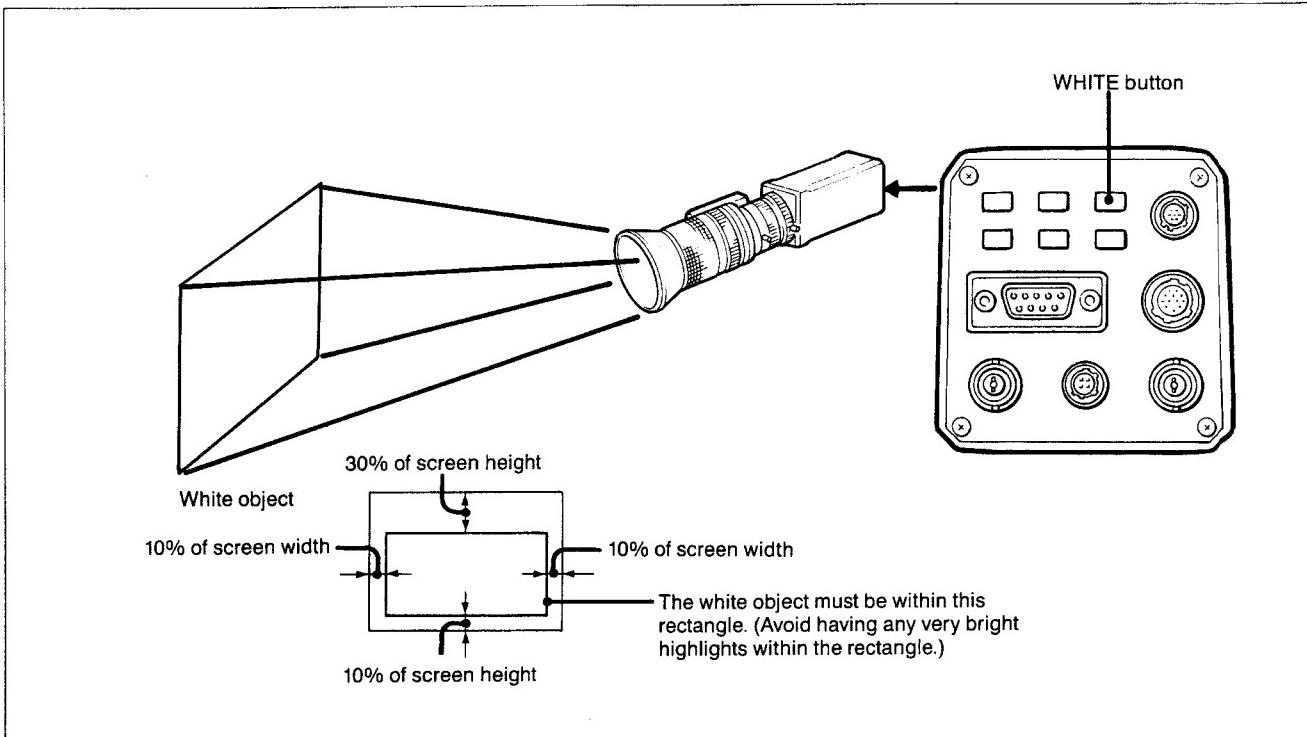
Black balance adjustment errors

If black balance adjustment has not been done successfully, either of the following two error messages appears on the monitor screen for about 4 seconds. Take the necessary action.

Error message	Meaning and Remedy
BLACK: NG	<p>The camera failed to adjust the black balance for some reason. Press the BLACK button again.</p> <p>Note If this message appears again and again, it is necessary to have the internal circuitry checked by qualified personnel.</p>
BLACK: NG IRIS CLOSE ?	<p>The camera was not able to adjust the black balance because of the light entering the lens.</p> <ul style="list-style-type: none">• If you were controlling the lens iris manually, close the iris and then press the BLACK button again.• If you are using a microscope adaptor without lens iris closing capability, see to it no light enters the lens and then press the BLACK button again.

1-12. ADJUSTING THE WHITE BALANCE

Each time the lighting condition changes, you have to adjust the camera for white balance so that optimal color reproduction is obtained.



- 1** Using the menu, make the following settings for color temperature and white balance adjustment mode (see page 1-16):
 - C. TEMP: 3200K or 5600K (depending on the lighting condition)
 - WHT.BAL: AUTO
- 2** Display the camera picture on the monitor screen.
 - If the color bar signal is displayed on the screen, press the BARS button to make it disappear.
 - If the menu is displayed on the screen, press the MENU button to make it disappear.
- 3** Set the lens iris control as follows:
 - For automatic iris control when using a lens with automatic iris control capability.
 - For an appropriate value of iris opening when using a manual iris control lens.
- 4** Place a white object in the same light as that which is falling on the subject to be shot, then point the camera at that object and zoom the lens.
 - The white object can be a piece of white paper or cloth, a white wall, or the like.
 - The requirements of the white area for the adjustment are as indicated in the above figure.
 - Avoid having any very bright highlights in the screen.
- 5** Press the WHITE button.

Automatic white adjustment begins and is accomplished in several seconds. The "WHITE : OK" message appears in the monitor screen. The adjusted white level is automatically stored in memory, and will be preserved for at least 10 years even if the power of the camera is turned off.

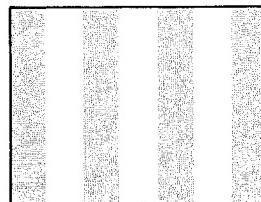
White balance adjustment errors

If white balance adjustment has not been done successfully, one of the following error messages appears on the monitor screen for about 4 seconds. Take the necessary action.

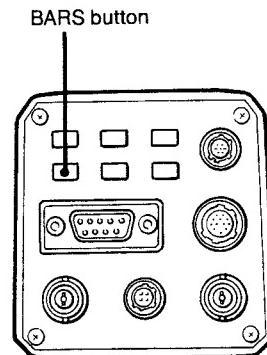
Error message	Meaning and Remedy
WHITE: NG LEVEL: LOW	The video level was too low. Take one or more of the following actions and then press the WHITE button again. <ul style="list-style-type: none"> • Make the illumination brighter. • Widen the iris opening. • Increase the video gain.
WHITE: NG LEVEL: ???	The camera failed to adjust the white balance. Take one or both of the following actions and then try again. <ul style="list-style-type: none"> • Get any very bright highlights out of the screen. • Adjust the illumination. <p>Note If this message appears again and again, it is necessary to have the internal circuitry checked by qualified personnel.</p>
WHITE: NG C.TEMP: LOW	The color temperature was too low. Change the C.TEMP setting in the menu to 5600K and try again.
WHITE: NG C.TEMP: HIGH	The color temperature was too high. Change the C.TEMP setting in the menu to 3200K and try again.
WHITE: MANU	The current WHT.BAL setting in the menu is MANU. Change the WHT.BAL setting to AUTO.

1-13. ADJUSTING THE VIDEO MONITOR

You can use the camera's color bar signal output to adjust the video monitor for optimal color reproduction.



Color bars signal displayed on the monitor screen in monicolor mode for blue



- 1 Press the BARS button.
The camera outputs the color bar signal to the monitor.
- 2 Set the monitor for monicolor mode for blue.
- 3 Adjust the chroma and phase controls on the monitor so that all four blue bars are at the same brightness level.
- 4 Reset the monitor for normal (triplecolor) mode.
- 5 Press the BARS button again.
The picture on the screen switches from color bars to that the camera is taking.
 - The iris of the lens is automatically closed when the camera begins to output the color bar signal, and remains so until when the camera stops outputting that signal. If you were manually controlling the lens iris before pressing the BARS button in step 1, you need to reopen it after the video monitor adjustment because it otherwise will remain closed.



1-14. ADJUSTING THE PICTURE TONE ON A MULTI-CAMERA SYSTEM

When configuring a multi-camera system, it is necessary to adjust all cameras to prevent camera-to-camera variations in picture tone.

Supply the same sync signal to all cameras (see page 1-8), then make adjustments as instructed below.

When Connecting the Cameras to Video Equipment with Phase Indication Capability

When the cameras are connected to a special effect generator, a chroma keyer or other video equipment having a phase indication capability, the basic adjustment procedure is as follows.

- 1 Activate the phase indication capability of the connected video equipment.
- 2 Adjust the horizontal phase using the H. PHASE function of the menu (see page 1-20).
- 3 Adjust the subcarrier phase.
First make a coarse adjustment for 0° or 180° using the 0/180 item of the menu, then a fine adjustment using the SC item. (See page 1-20.)

For more details, refer to the instructions manual for the connected video equipment with phase indication capability.

When Not Connecting the Cameras to Video Equipment with Phase Indication Capability

Use one of the cameras as reference camera and adjust the other cameras to the reference camera one by one.

- 1 Adjust the horizontal phase.
Using the H. PHASE function of the menu (see page 1-20), make adjustment so that the reference video signal and the output signal have the same horizontal sync phase. Use a waveform monitor or an oscilloscope to check the phase.
- 2 Adjust the subcarrier phase.
First make a coarse adjustment for 0° or 180° using the 0/180 item of the menu, then make adjustment using the SC item so that the reference video signal and the output video signal have the same subcarrier phase. (See page 1-20.)
 - Use a vectorscope or the wiping capability of a special effect generator so that the reference camera picture and the picture from the camera to be adjusted are both displayed on the monitor screen in vertical or horizontal juxtaposition.

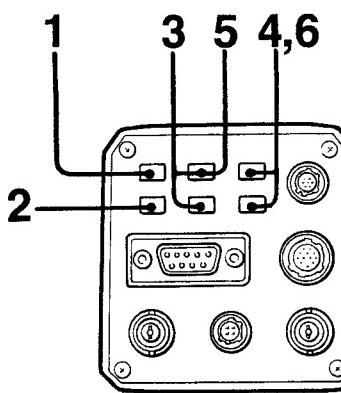
1-15. PROCEDURE FOR CHANGING SETTINGS

You can easily change any camera operational settings through simple button manipulation while seeing the menu display on the monitor screen.

This section describes how to change settings by taking up video gain and white balance as examples, which are two of the adjustment items requiring a change of setting most frequently. All the items whose settings can be changed using the menu are listed up on page 1-18.

Example 1: Changing the Video Gain Setting

When shooting in very low light, fully opening the lens iris may not be sufficient to produce acceptably bright pictures. In such case, you can obtain pictures of adequate brightness by raising the video gain setting.



- 1 Press the MENU button.
The menu display appears on the monitor screen.

Selected-line indicator

GAIN	STEP
STEP	00DB
C.TEMP	3200K
WHT.BAL	AUTO
R.GAIN	+00
B.GAIN	+00
CCD IRIS	OFF
SHUTTER	OFF

Menu display (example)

- 2 Press the DISPLAY button.

Each press of this button switches the number of display lines between 1 and 8.

- 3 Using the FUNCTION UP and FUNCTION DOWN buttons, select the line showing the desired item. The FUNCTION UP button scrolls the menu display upwards, and FUNCTION DOWN, downwards. In this example, select the line showing the GAIN item.

GAIN	STEP
STEP	00DB

- 4 Using the DATA UP and DATA DOWN buttons, select the desired setting.

AGC: for automatical control of video gain.

This selection means the end of the procedure.

STEP: for setting the video gain to the desired level.
Go to step 5.

GAIN	STEP
STEP	00DB

- 5 Using the FUNCTION UP button, select the cursor on the line showing the STEP item.

STEP	00DB
------	------

- 6 Using the DATA UP and DATA DOWN buttons, set the gain to the desired level.

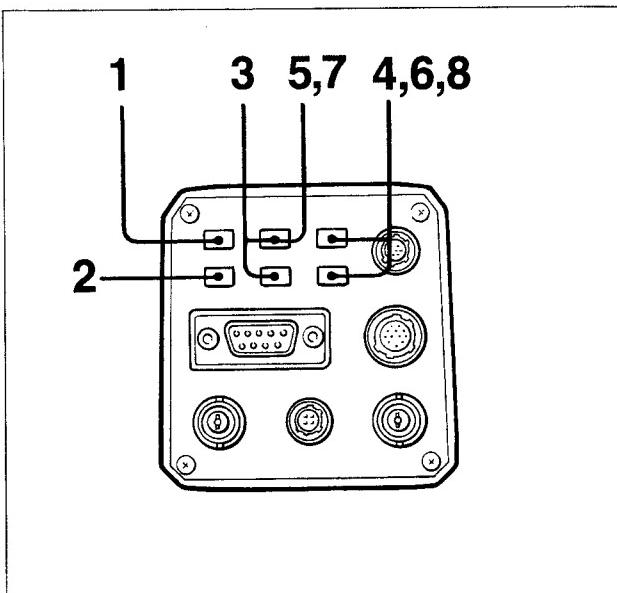
You can set the gain to any value in the range of 0 to 18.

STEP	(00 to 18)DB
------	--------------



Example 2: Changing the White Balance Setting

The procedure for manual adjustment of white balance is as follows. For automatical adjustment, see page 1-13.



- 1** Press the MENU button.
The menu display appears on the monitor screen.

Selected-line indicator	
■ GAIN	STEP
STEP	00DB
C.TEMP	3200K
WHT.BAL	AUTO
R.GAIN	+ 00
B.GAIN	+ 00
CCD IRIS	OFF
SHUTTER	OFF

Menu display (example)

- 2** Press the DISPLAY button.
Each press of this button switches the number of display lines between 1 and 8.

- 3** Using the FUNCTION UP and FUNCTION DOWN buttons, select the line showing desired item.
In this example, position the cursor on the line showing the WHT.BAL item.

■	WHT.BAL	AUTO
	R.GAIN	+ 00
	B.GAIN	+ 00

- 4** Using the DATA UP and DATA DOWN buttons, select MANU.
AUTO: for automatical adjustment. You can now use the automatical white balancing function.
(See page 1-13.)
MANU: for manual adjustment. Go to step 5.

■	WHT.BAL	AUTO
	R.GAIN	+ 00
	B.GAIN	+ 00

- 5** Using the FUNCTION UP button, select the line showing the R.GAIN item.

■	R.GAIN	+ 00
	B.GAIN	+ 00

- 6** Using the DATA UP and DATA DOWN buttons, set the red gain to the desired level.
You can set the gain to any value in the range of - 99 to + 99.

■	R.GAIN	(- 99 to + 99)
	B.GAIN	+ 00

- 7** Using the FUNCTION UP button, select the line showing the B.GAIN item.

■	B.GAIN	+ 00
---	--------	------

- 8** Using the DATA UP and DATA DOWN button, set the blue gain to the desired level.
You can set the gain to any value in the range of - 99 to + 99.

■	B.GAIN	(- 99 to + 99)
---	--------	----------------

Basic principles of the operation to change settings

As is understandable from the two examples given above, the basic principle of the operation to change settings can be summarized as follows.

- 1 Press the MENU button to display the menu.
- 2 Select a menu item with the FUNCTION UP and FUNCTION DOWN buttons.
- 3 Select the desired setting with the DATA UP and DATA DOWN buttons.

Selected-line indicator	
GAIN	STEP
STEP	00DB
C.TEMP	3200K
WHT.BAL	AUTO
R.GAIN	+00
B.GAIN	+00
CCD IRIS	OFF
SHUTTER	OFF

Menu item	Setting or setting range	Initial setting
M.PED *1 (master pedestal)	-99 to +99	+00
DTL (detail)	-99 to +99	+00
H.PHASE *1 (horizontal phase)	-99 to +99 (Change of setting is enabled if a sync signal is input to GEN LOCK connector.)	+00
SC*1 (subcarrier phase)	-99 to +99	+00
0/180	0 or 180 (Change of setting is enabled if a sync signal is input to GEN LOCK connector.)	0
GAMMA (gamma compensation)	ON or OFF	ON
G.SYNC (G with sync)	ON or OFF	ON
FLD/FRM (field/frame)	FLD or FRM	FLD
D-SUB (RGB/SYNC output signal format)	YC or VBS	VBS

*1 To restore the initial, or central, setting (+00) for this item, press the DATA UP and DATA DOWN buttons simultaneously.

1-16. SETTINGS THAT CAN BE CHANGED (LIST OF MENU ITEMS)

Menu item	Setting or setting range	Initial setting
GAIN (video gain)	AGC or STEP	STEP
STEP	0 to 18 dB (Change of setting is enabled by selection of STEP on GAIN.)	0 dB
C.TEMP (color temperature)	3200K or 5600K	3200K
WHT.BAL (white balance)	AUTO or MANU	AUTO
R.GAIN*1 B.GAIN*1	-99 to +99 -99 to +99 (Change of setting is enabled by selection of MANU on WHT.BAL.)	+00 +00
CCD IRIS	ON or OFF	OFF
SHUTTER (electronic shutter)	OFF, STEP, or MANU For settings, see page 1-20.	OFF
STEP	FL, or 1/125 to 1/10000 sec. (Change of setting is enabled by selection of STEP on SHUTTER.)	FL
MANU	Functions only when CCD IRIS is set to OFF. (Change of setting is enabled by selection of MANU on SHUTTER.)	OFF



The following are the descriptions of the menu items and their settings.

GAIN (video gain)

AGC: for automatical control of video gain.

The gain of the video signal circuitry is automatically controlled depending on the brightness of the subject. This function is useful when the illuminance of the subject varies more or less dramatically.

STEP: for setting the video gain to the desired level.

Use this function for shooting in so dark places that fully opening the lens iris can still not give an acceptably bright image. The gain level can be set in the range of 0 to 18 dB in units of 1 dB.

C.TEMP (color temperature)

3200K: for indoor shooting.

5600K: for outdoor shooting.

WHT.BAL (white balance)

AUTO: for automatical adjustment of white balance described on page 1-13.

MANU: for manual adjustment of white balance. Both red gain (R.GAIN) and blue gain (B: GAIN) are adjustable.

CCD IRIS

ON: When an excessive amount of light passes through the lens, this function increases the shutter speed automatically to nearly the same effect that the lens iris is narrowed 3 stops down.

In microscope shootings using a microscope adaptor without incident light control capability, for example, an amount of incident light which is not too much for a human eye will often be so for a video camera. With CCD IRIS set to ON, an excessive amount of incident light is automatically decreased to an appropriate level for the video camera. In another example, if there is a very bright object (such as snow, or sea water reflecting sunlight) within the range of view of the lens, the incident light is automatically decreased to a certain level if of course the lens has an automatical iris control capability. Also in such case, CCD IRIS is useful to give a further decrease of incident light.

OFF: for shooting in normal lighting condition. Also use this setting when:

- The picture flickers on the monitor screen. This may occur when using the DXC-930* with lighting power of 50 Hz or the DXC-930P, of 60 Hz. In such case, set CCD IRIS to OFF and shutter speed to FL. (See the next page.)
- The camera is used under fluorescent light. This may cause slow variations in color to the picture. If the degree of color variations is unacceptable, set CCD IRIS to OFF.

SHUTTER (electronic shutter)

The electronic shutter allows you to obtain blur-free pictures of a fast moving subject, and if used combinedly with a frame memory device, adequately bright pictures of low-illuminated subjects.

Note that the SHUTTER function is effective only when CCD IRIS is set to OFF.

OFF: for inactivating the electronic shutter.

STEP: for setting the shutter speed to one of the following eight: FL, 1/125, 1/250, 1/500, 1/1000, 1/2000, 1/4000, and 1/10000 sec.

FL gives flickerless pictures. When using the DXC-930* with lighting power of 50 Hz or the DXC-930P, of 60 Hz, setting SHUTTER to FL gives you flickerless pictures even under fluorescent light.

MANU: for adjusting the shutter speed in units of frame or horizontal scan cycle time (H) in the following rage.

DXC-930*:

In units of frame	OFF	In units of H
In FLD mode* ² : 255 to 001		260/525 to 1/525
In FRM mode* ² : 256 to 002		

DXC-930P:

In units of frame	OFF	In units of H
In FLD mode* ² : 255 to 001		310/625 to 1/625
In FRM mode* ² : 256 to 002		

*2 About FLD and FRM modes, see page 1-20.

Adjusting the shutter speed in units of frame: for example, if the setting is 050 (equivalent to about 1.7 seconds with DXC-930* and 2 seconds with DXC-930P), the whole amount of video signal accumulated during this set time will be output in the form of one complete picture (or one still frame) at intervals of about 1.7 seconds or 2 seconds depending on the camera. These pictures, which contain 50 frames of video information, are much brighter than normal one-frame pictures. Therefore, this mode of setting the shutter speed is very useful for shooting a low-illuminance subject in a dark place. You can make timing pulses for taking out still pictures be output from the RGB/SYNC connector by changing the setting of the internal SYNC switch (see the figure). You can use this function advantageously for image processing or image analysis by synchronizing an external frame memory with the timing pulses to take out still pictures.

* The DXC-930 can be replaced with the DXC-960MD.

Adjusting the shutter speed in units of H: with the DXC-930*, 1 H is 63.56 μ sec. and with the DXC-930P, 64.0 μ sec. This function reduces a noise which appears as horizontal stripes when shooting computer screen displays for example (Clear Scan function). While checking the image on the monitor screen, you can make adjustment using the DATA UP and DATA DOWN buttons to obtain a picture showing the least possible horizontal stripe noise.

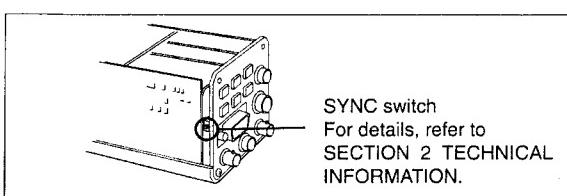
Calculating shutter speeds from SHUTTER MANU settings

Example 1: When the frame setting is 005:

$$\text{DXC-930*}: 005 \times 1/30 \text{ sec.} = 0.1666 \text{ sec.}$$
$$\text{DXC-930P}: 005 \times 1/25 \text{ sec.} = 0.2 \text{ sec.}$$

Example 2: When the H setting is 250/525
(DXC-930*) or 250/625 (DXC-930P):

$$\text{DXC-930*}: 250 \times 63.56 \mu\text{sec.} + 34.78 \mu\text{sec.}$$
$$(\text{constant}) = 15924.78 \mu\text{sec.}$$
$$= \text{approx. } 0.016 \text{ sec.}$$
$$\text{DXC-930P}: 250 \times 64 \mu\text{sec.} + 35.6 \mu\text{sec.} (\text{constant})$$
$$= 16035.6 \mu\text{sec.} = \text{approx. } 0.016 \text{ sec.}$$



Note

When SHUTTER is set to MANU, do not use the AGC function or the white balancing function.

M.PED (master pedestal)

Normally set this to +00.

When the black parts of the picture are too dull, you can make them look sharp by adjusting the master black level. Use of a waveform monitor will make the adjustment easier.

DTL (detail)

You can use the DTL function to adjust the sharpness of the outlines of objects in the reproduced picture. A higher set value makes the picture look sharper with more detail on the image outlines, and a lower value makes the picture look softer with less detail.

H.PHASE (horizontal phase)

When an external reference sync signal to gen-lock the camera is input to the GEN LOCK connector, the camera operates at the frequency of that reference signal. You can use this H.PHASE function to perfectly synchronize the camera operation with the reference signal to the level of horizontal phase.

SC and 0/180 (subcarrier phase)

When gen-locking the camera, use the SC and 1/180 functions to adjust the subcarrier phase.

First use 1/180 for coarse adjustment and then SC for fine adjustment.

GAMMA (gamma compensation)

ON: for normal use of the camera. The image reproduction characteristics of the monitor CRT are properly compensated for automatically to give pictures of natural tones.

OFF: for producing pictures convenient for image processing or image analysis. The video signal is output linearly from the CCD without gamma compensation.

G.SYNC (G with sync)

ON: for using a video monitor without sync input connector. A sync-added G signal can be output from the RGB/SYNC connector of the camera.

OFF: normal setting. The G signal is output from the RGB/SYNC without sync signal.

FLD/FRM (field/frame)

FLD: for shooting fast moving subjects. The CCD accumulates and outputs the charges field by field to give pictures showing a minimum blur even when the subject is fast moving.

FRM: for producing pictures with the highest possible vertical resolution. The CCD accumulates and outputs the charges frame by frame. Select this setting when using the camera with measuring instruments, image processing or image analysis systems equipped with a frame memory, or still image processing systems.

D-SUB (RGB/SYNC output signal format)

This allows you to select the output signal format for the RGB/SYNC connector.

Y/C: for separated Y and C signals.

VBS: for composite video signal.

* The DXC-930 can be replaced with the DXC-960MD.

1-17. SPECIFICATIONS

Imager	1/2-inch CCD, interline transfer type	Charge accumulation mode
Effective picture elements		Switchable between field and frame modes
DXC-930*: 768 (H) × 494 (V)		Video:
DXC-930P: 768 (H) × 494 (V)		Composite: 1.0 Vp-p, 75 ohms
Synchronization	Internal/external (VBS) synchronization, automatical switching	R/G/B: 0.7 Vp-p, 75 ohms
Signal format	DXC-930*: EIA standard format	Y: 1.0 Vp-p, 75 ohms
	DXC-930P: PAL format	C: Same level as VBS chroma, 75 ohms
Horizontal scanning		Sync: 2.0 Vp-p, 75 ohms
DXC-930*: 525 lines, 2:1 interlace		Input/output connectors
DXC-930P: 625 lines, 2:1 interlace		VIDEO OUT: BNC, 75 ohms, unbalanced
Scanning frequency		GEN LOCK: BNC, 75 ohms, unbalanced
DXC-930*: Horizontal: 15.734 kHz		DC IN/REMOTE: 12-pin
Vertical: 59.94 Hz		RGB/SYNC: D-SUB 9-pin
DXC-930P: Horizontal: 15.625 kHz		LENS: 9-pin, for 2/3-inch lens
Vertical: 50 Hz		CCU: 20-pin
Horizontal resolution	720 TV lines	Power supply 12 V DC
Sensitivity	DXC-930*: 2,000 lux (f/5.6, 3200 K)	Power consumption 7.8 W
	DXC-930P: 2,000 lux (f/5, 3200 K)	Operating temperature -5 to +45 °C (23 to 113°F)
Signal-to-noise ratio	DXC-930*: 58 dB	Storage temperature -20 to +60°C (-4 to +140°F)
	DXC-930P: 56 dB	Demensions (w/h/p) 70 × 72 × 123.5 mm (2 7/8 × 2 7/8 × 4 7/8 inches)
Lens mount	1/2-inch bayonet type	Weight About 670 g (1 lb 8 oz)
Gain control	• Automatic	
	• Manual: 0 to 18 dB in units of 1 dB	
White balancing	• Automatical	
	• Manual: red gain and blue gain adjustable individually	
CCD iris control	On/off switchable	
Electronic shutter speed	Adjustable in the range of 1/10,000 to about 8.5 sec (DXC-930*) or 10 sec (DXC-930P)	
Gamma compensation	On/off switchable	

Design and specifications are subject to change without notice.

* The DXC-930 can be replaced with the DXC-960MD.

1-18. RECOMMENDED EQUIPMENT

Lenses

VCL-707BXM (automatic zoom, 7×)
VCL-712BXEA (automatic zoom, 12×)
VCL-716BXEA (automatic zoom, 16×)

Camera adaptors and camera remote control units

CMA-D1 camera adaptor (for DXC-930*)
CMA-DICE camera adaptor (for DXC-930P)
RM-930 camera remote control unit (with CCMC cable)

Microscope adaptors and couplers

MVA-40 microscope adaptor (with automatic dimmer)
MVA-41 microscope adaptor
MVAC-33-O microscope coupler (for Olympus
microscopes)
MVAC-33-N microscope coupler (for Nikon microscopes)

Camera control units

CCU-M7/M7P
CCU-M3/M3P

Power supply cables

CCDC series (length: 10 m (32 ft) or 25 m (82 ft))
CCDCA series (length: 50 m (164 ft) or 100 m (328 ft))

CCU connection cables

CCTQ-3RGB (for CCU-M3/M3P, with CCQQ-1
extension connector, length: 3 m (9 ft 10 in))
CCTZ-3RGB (for CCU-M7/M7P, R/G/B transmission,
with CCZZ-1 extension connector, length: 3 m (9 ft
10 in))
CCTZ-3YC (for CCU-M7/M7P, Y/C transmission, with
CCZZ-1 extension connector, length: 3 m (9 ft 10 in))

Extension cables for CCU connection

CCQ-AM (for CCU-M3/M3P, max. length: 100 m
(328 ft))
CCZA (for CCU-M7/M7P, max. length: 300 m (984 ft))

Camera cables

CCXC-9DB (with a D-SUB 9-pin connector at one end,
and five BNC connectors at the other)
CCXC-9DD (with a D-SUB 9-pin connector at each end)
CCMC-9DS (with a D-SUB 9-pin connector, and four
BNC and one S-video connectors at the other)

1-19. GLOSSARY

Some of the technical terms used most often in video camera technology and operation are explained hereunder.

Bayonet mount

A type of lens mount. The lens can be inserted into the lens mount and fixed in place quickly by rotating the mount lever.

Black balancing

To adjust a video camera while closing the lens iris completely so that the portions of the camera signal at the black level represent absolute black.

The pedestal level is adjusted so that the black levels of the R, G and B signals are equal. See "Pedestal level."

CCD

Abbreviation of Charge-Coupled Device. A semiconductor imaging device to convert input light levels into electrical charges, which are once stored and then output in the form of electrical voltage variations.

Color bar signal

A test signal to be displayed as vertical bars of different colors on a color video monitor. Used to check chrominance functions of television and video equipment, for example to check hue and saturation.

Color temperature

The temperature in Kelvins (K) to represent the color of a light source, determined by heating a perfectly black body until its color matches that of the light source. Color temperature is higher when the color is bluish and lower when reddish.

Color temperature conversion

Conversion of the color temperature of a light source to a particular reference color temperature (3200K for this camera, for example). See "Color temperature."

Field

One-half of a complete television or video camera picture (or frame) containing all of the odd or even scanning lines of the picture. See "Frame".

Frame

A single complete television or video camera picture consisting of two interlaced fields. See "Field."

Gen-lock

Abbreviation of Generator Lock. Locking the internal sync generator of a camera with an external reference sync signal.

* The DXC-930 can be replaced with the DXC-960MD.



Horizontal resolution

The capability of a camera to resolve detail in a horizontal direction. It is usually expressed as the number of vertical lines which can be distinguished on the monitor screen when shooting a test chart.

Iris

A diaphragm which controls the amount of light passing through the lens.

Pedestal level

Reference video level. Since signals close to the reference black level of the video signal contain noise, the pedestal level is set at about 10% above the blanking level.

Shutter speed

The length of time a shutter remains open. The faster the shutter speed, the less the shot image blurs but the darker it looks.

Subcarrier

The color information signal contained in a video signal. Its phase is for hue and its amplitude, color saturation.

VBS

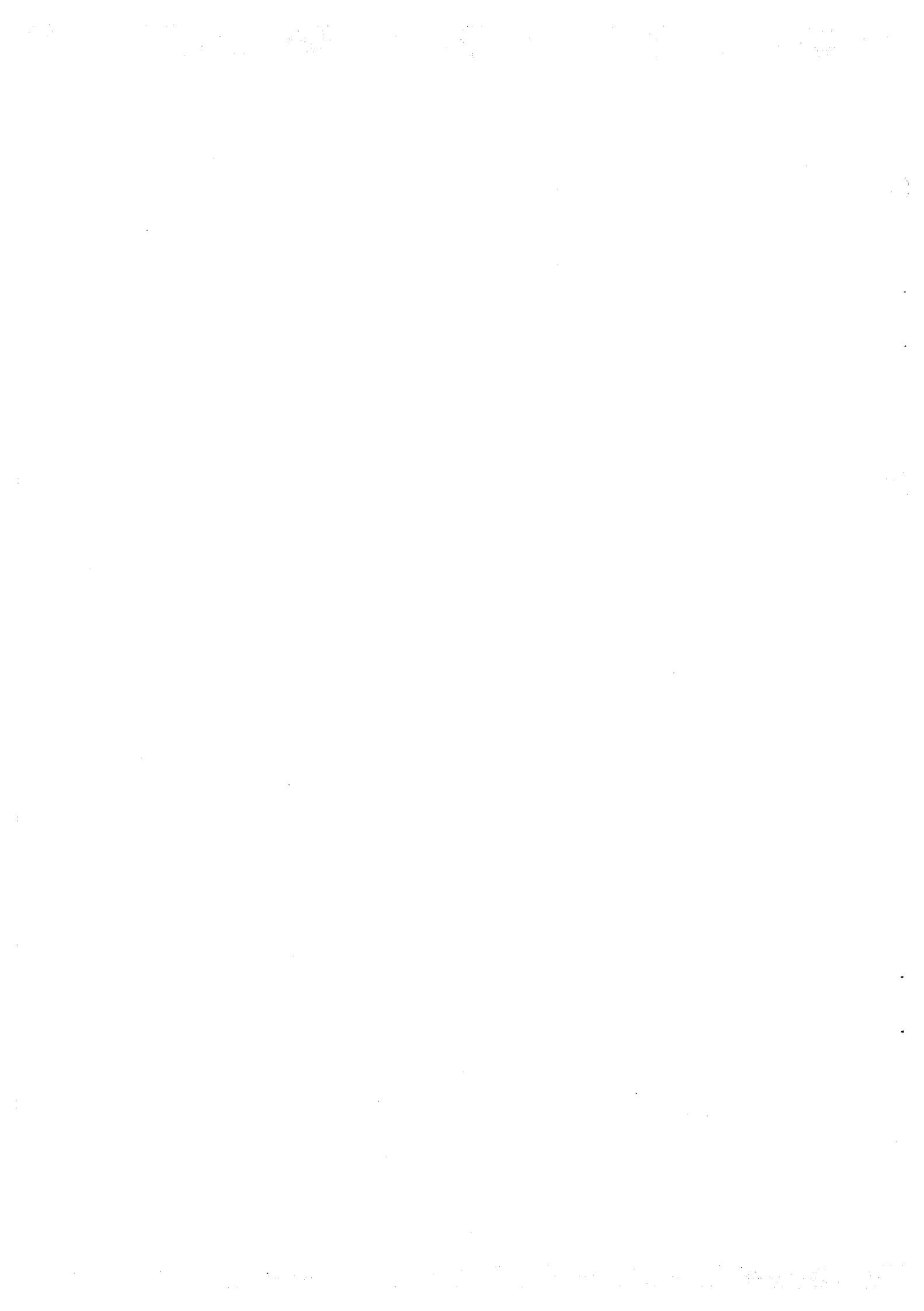
Abbreviation of Video, Burst and Sync. A composite signal consisting of video signal, burst signal and sync signal.

Video gain

Amount of amplification for video signals, expressed in decibels (dB).

White balancing

In the light of a particular color temperature, to adjust the white levels of the R, G and B signals of a video camera so that any white subject shot in that light is reproduced as a truly white image. See "Color temperature".



SECTION 2 TECHNICAL INFORMATION

2-1. SWITCHES SETTING ON THE BOARD

AT-69 BOARD

- SW1 (OPE/ADJ)

When adjusting the electronic controls, the S1 switch on the AT-69 board set to "ADJ" position.

Normally set to "OPE" position.

- SW2 (PT/ZF)

Normally set to "ZF" position.

When using the special system, for example, PAN and TILT control by the Camera Control Unit, set to "PT" position.

CN-579 BOARD

- SW7 (SYNC/SG1)

Normally set to "SYNC" position.

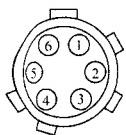
SYNC: The synchronizing signal outputs from 9P D-SUB connector.

SG1: The shutter speed can be set in units of frame. Setting this mode is very effective for shooting a low luminance subject in a dark place. Because a video signal is stored during a frame period, a brighter video signal can be obtained.
And the image processing or image analysis can be performed by synchronizing an external frame memory with the timing pulses and memorizing a video signal.
As a result, the pulse synchronized with the read timing pulse is output.

2-2. CONNECTOR/CABLE

2-2-1. Connector Input/Output Signals

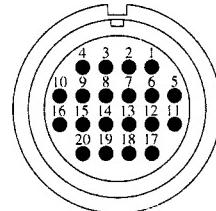
LENS (6P, FEMALE)



(EXT VIEW)

PIN NO.	SIGNAL	SPECIFICATION
1	NC	
2	NC	
3	UNREG (G)	
4	IRIS CLOSE	5 V (COMPULSORY AUTO)
5	IRIS CONT	2.6 V (CLOSE)~7.6 V (OPEN)
6	UNREG (+)	+12 V

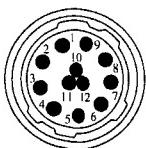
CCU, (20P MALE)



(EXT VIEW)

PIN NO.	SIGNAL	SPECIFICATION
1	UNREG OUT (+)	+12 V
2	UNREG OUT (G)	
3	VBS OUT (X)	1 V p-p
4	(G)	
5	R (X)	0.7 V p-p
6	R (G)	
7	G (X)	0.7 V p-p
8	G (G)	
9	B (X)	0.7 V p-p
10	B (G)	
11	Y (X)	1 V p-p
12	Y (G)	
13	C (X)	NTSC: 0.28 V p-p (BURST) PAL: 0.3 V p-p
14	C (G)	
15	GENLOCK (CCU) IN (X)	1V p-p
16	GENLOCK (CCU) IN (G)	
17	SERIAL DATA IN (X)	
18	SERIAL DATA IN (G)	
19	SENSE (+)	
20	SENSE (-)	

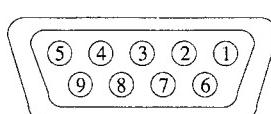
DC IN/REMOTE (12P, MALE)



(EXT VIEW)

PIN NO.	SIGNAL	SPECIFICATION
1	UNREG (G)	
2	UNREG (+)	+12 V
3	VBS (G)	
4	VBS (+)	
5	FOCUS CONT	0 to 5 V
6	IRIS CONT	0 to 5 V
7	CAM/REM CTL	CAM: 5 V REM: 0 V
8	ZOOM CONT	0 to 5 V
9	MODE	
10	UNREG (G)	
11	UNREG (+)	+12 V
12	IRIS A/M	AUTO: 5 V MANU: 0 V

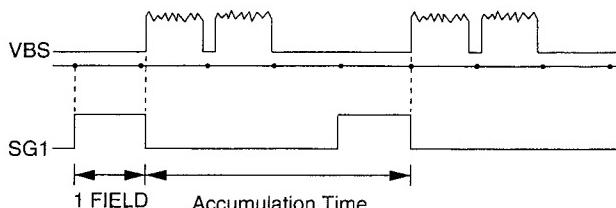
D-SUB (9P)



(EXT VIEW)

PIN NO.	SIGNAL	SPECIFICATION
1	VBS (G)	
2	R/G/B (G)	
3	R (X)	0.7 V p-p (75 ohms)
4	G (X)	0.7 V p-p (75 ohms)
5	B (X)	0.7 V p-p (75 ohms)
6	VBS/Y (X)	1 V p-p (75 ohms)
7	SYNC (X) *	2 V p-p (75 ohms)
8	SYNC (G)	
9	C (X) / —	

* SG1 output waveform at pin 7 is shown when SYNC switch SW7/CN board is set to SG1 (Output Timing Pulse) position. The signal is only output during long-time accumulation mode.



2-2-2. Connector

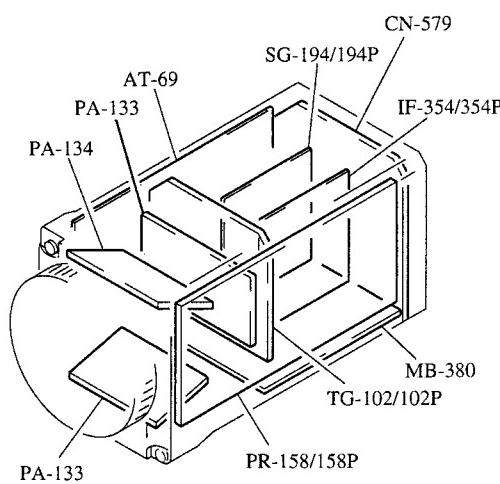
Connection made with the connector panels during installation or service, should be made with the connectors/complete cable assemblies specified in the following list, or equipment parts;

Connector function	Parts No. , and name of connector with cable
LENS (6P, FEMALE)	1-560-078-41 PLUG, 6P MALE
CCU (20P, MALE)	1-691-747-11 PLUG, 20P FEMALE
DC IN/REMOTE (12P, MALE)	1-562-356-11 PLUG, 12P FEMALE
D SUB (9P)	• 1-566-354-11 PLUG, DSUB 9P MALE • JAE DEU-9PF-F0 equality
VIDEO OUT GENLOCK (BNC)	1-560-069-11 PLUG, BNC

SECTION 3

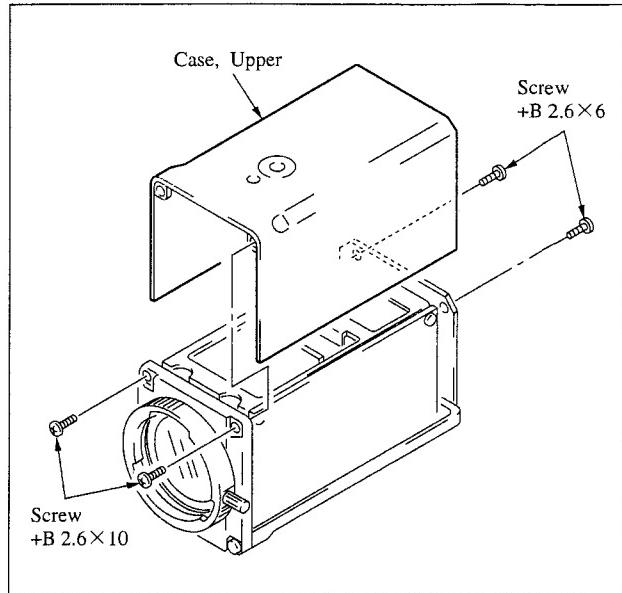
SERVICE INFORMATION

3-1. BOARD LAYOUT

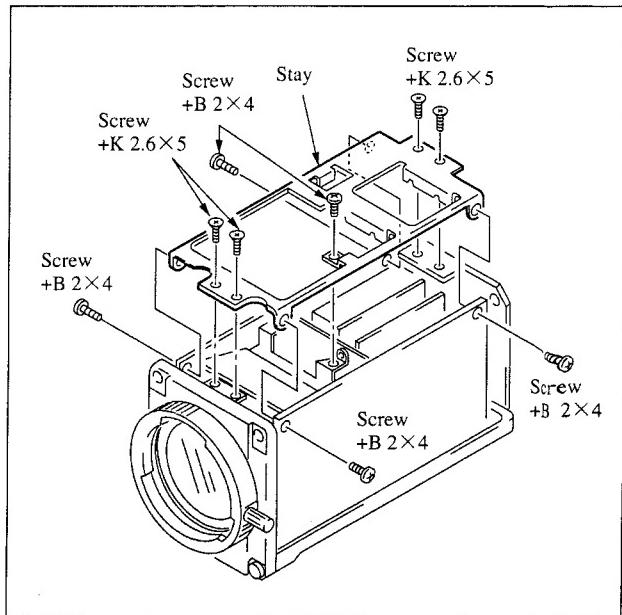


3-2. REMOVAL OF CABINET

1. Remove the four screws (+B 2.6×10, +B 2.6×6) and then remove the upper case.

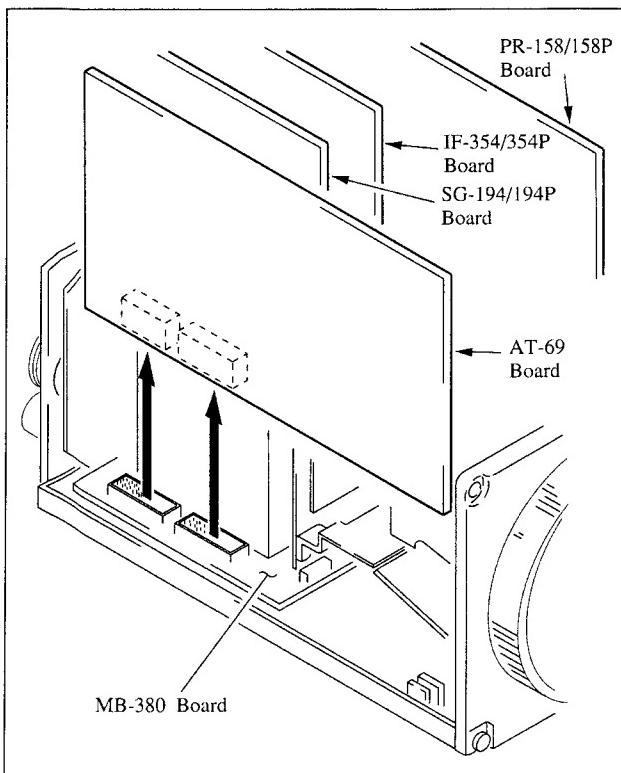


2. Remove the nine screws (+B 2×4, +K 2×4) and then remove the stay.

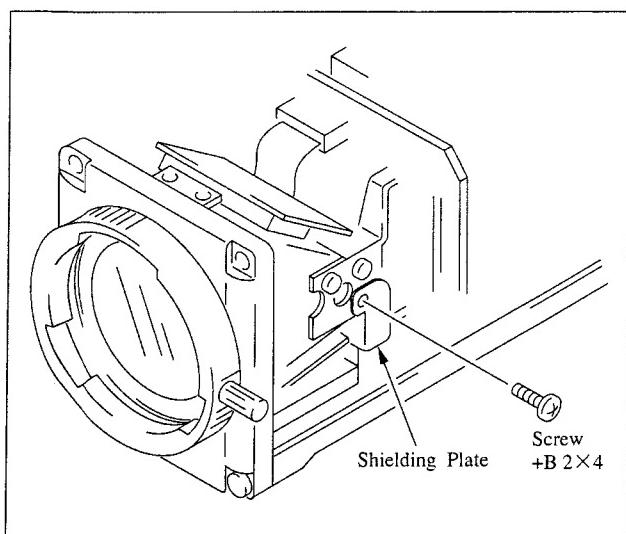


3-3. REMOVAL OF CCD BLOCK

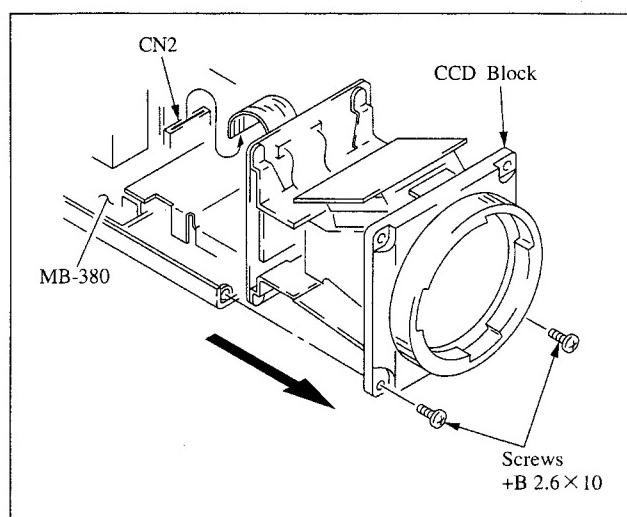
1. Remove the upper case and stay, referring to the Section 3-2 "REMOVAL OF CABINET".
2. Pull out the PR-158/158P, IF-354/IF-354P, SG-194/194P, and AT-69 boards from the MB-380 board.



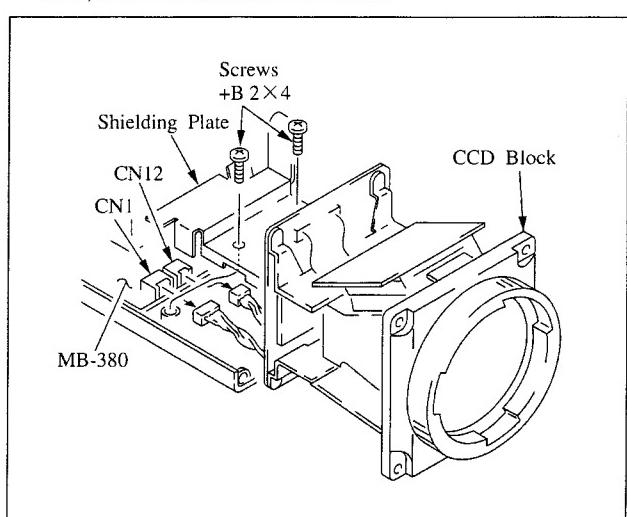
3. Remove the screw (+B 2x4).



4. Remove the two screws (+B 2.6x10) and pull out the CCD block from the main body.
5. Disconnect the flexible board from the CN2 on the MB-380 board.

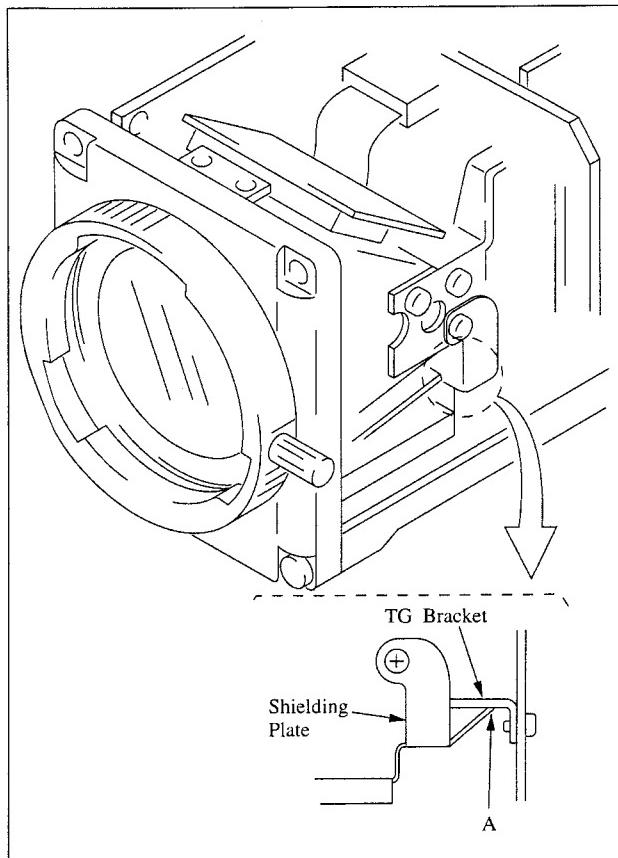


6. Remove the two screws (+B 2x4) and then remove the shielding plate. Disconnect the harness from the CN1 and CN12 on the MB-380 board, and then remove the CCD block.



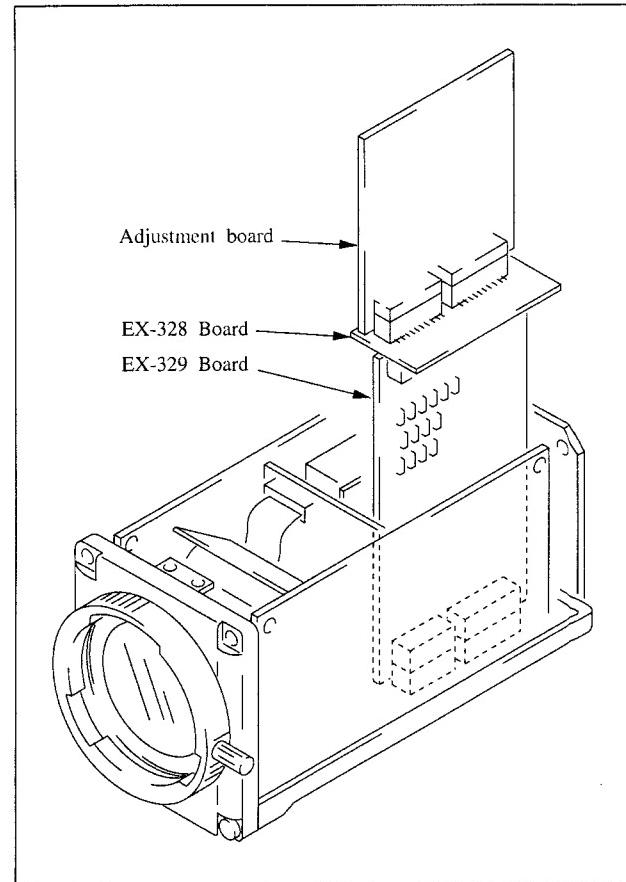
<Precautions on mounting the shielding plate>

When installing the shielding plate after replacement of the CCD block, confirm the TG bracket touches a portion "A" of the shielding plate.

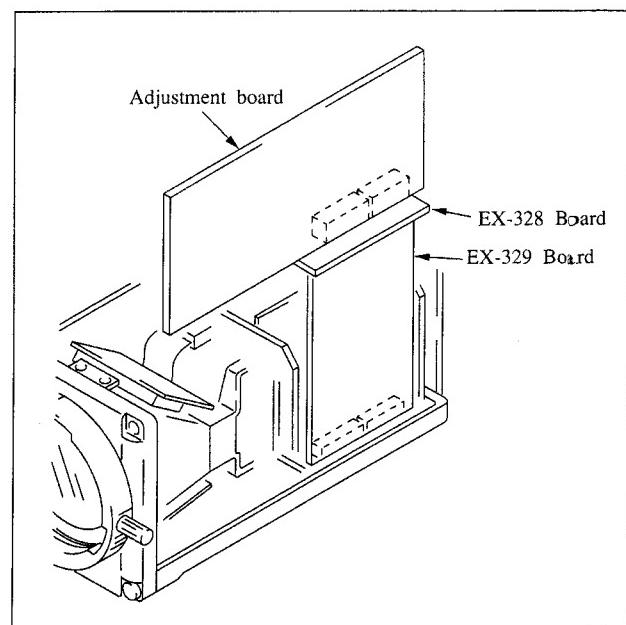


3-4. HOW TO USE AN EXTENSION BOARD

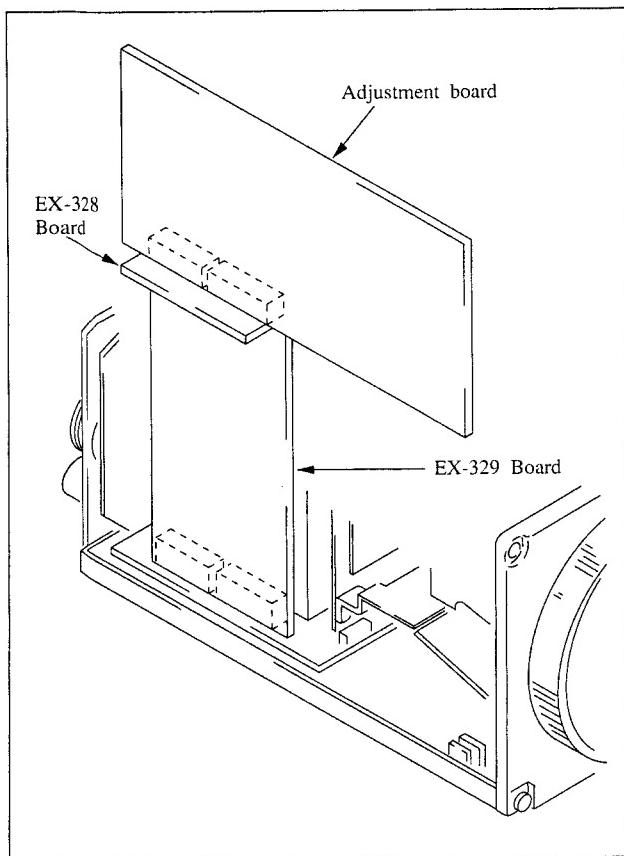
- In cases of the SG-194/194P board and the IF-354/354P board



- In cases of the PR-158/158P board



- In cases of the AT-69 board



SECTION 4

CIRCUIT OPERATION DESCRIPTION

4-1. PA-133 AND PA-134 BOARDS

The PA-133 and PA-134 boards have a CCD imager and converts incident light into an electric signal. They also extract a photoelectrically converted video signal by CDS.

From the viewpoint of the structure in channel B, these boards are classified into two types because the signal lines of the CCD driving clock from the TG-102/102P board and the power differ in the draw-out direction. However, the two boards are much the same in circuit configuration.

The PA-133 board is used in channels R and G, and the PA-134 board in channel B.

The light separated into the three primary colors via an optical system is sent to CCD imager IC1 (ICX038AT-1) and converted into an electric signal. Photosensors are arranged on the surface of a CCD chip. The number of photosensors in the horizontal direction is 811, and that in the vertical direction is 508. 411,988 photosensors are arranged in total. The number of effective pixels is 768 in the horizontal direction and 494 in the vertical direction (379,392 in total).

The incident light is converted into an electric charge corresponding to the brightness of light in a photosensor block. The converted charge is read from the photosensor block to the transfer block and sent to the output block. The transfer block is classified into a vertical transfer block and horizontal transfer block.

As shown in Fig. 1, 811 vertical transfer blocks are arranged

in the vertical direction of the screen, and one horizontal transfer block in the horizontal direction of the screen (the uppermost part in Fig. 1). The charges converted in photosensors are transferred to the vertical transfer blocks adjacent to each photosensor for every field in the field read mode (every frame in the frame read mode). The charges transferred to each vertical transfer block are vertically transferred in parallel using vertical transfer clocks V1 through V4 and sent sequentially to the horizontal transfer block. The horizontal transfer block transfers the charges horizontally using horizontal transfer clocks H1 and H2 (with frequency of 910 f_H) and sends them to the output block. The charges are then output from pin 10 (CCD OUT) of IC1. The horizontal and vertical transfer clocks are sent from the TG-102/102P board.

The charge of an output signal from IC1 is converted into a voltage using a capacitor in the output block, then output. The output signal is input through buffer Q2 (emitter follower) to pins 2 and 3 of IC4 (IC3 for the PA-134 board) (CXA-1439M). IC4 is a CDS IC. Using a sampling pulse input to pins 5 (SHD) and 6 (SHP), IC4 performs the sample and hold operation and separates a signal. It then outputs a video signal from pin 8 as a CDS OUT signal. The output signal is input through A1 (FPC) and TG-102/102P board to the PR-158/158P board.

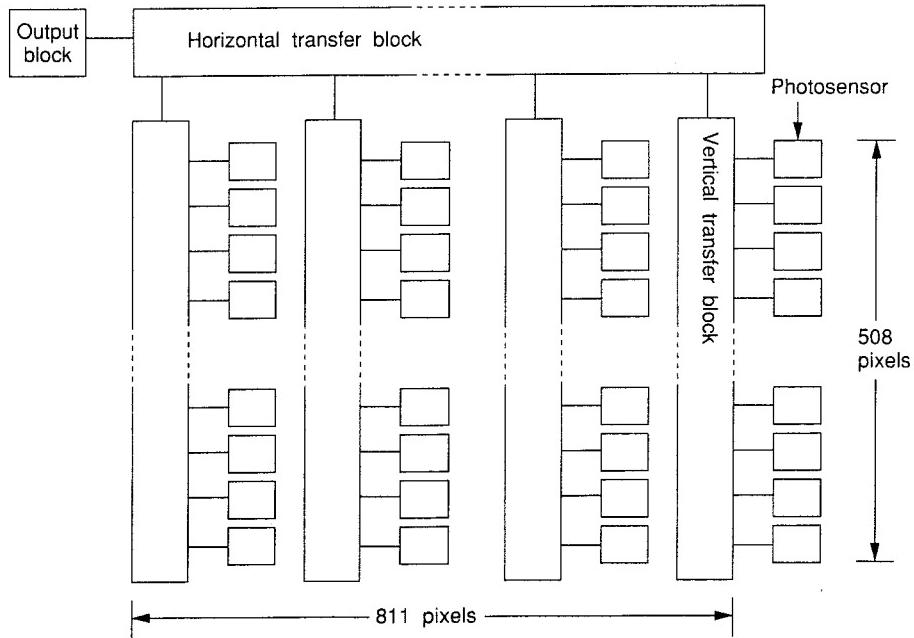


Fig. 1 Internal Structure of CCD

4-2. TG-102/102P BOARD

The TG-102/102P board consists of the circuits below.

- CCD drive timing signal generator IC2 and IC7 (CXD1256AR)
- CCD vertical transfer clock driver IC1, IC3 and IC6 (CXD1250N)
- CCD horizontal transfer clock driver (for channels R and B) IC8 (MC74AC04MR)
- 910 f_H phase operation circuit IC4 (SN74HC74ANS) and IC5 (SN74HC00ANS)
- LH1 negative power supply circuit
- RGL bias adjustment circuit
- V_{SUB} voltage supply circuit

(1) CCD drive timing signal generator

IC2 and IC7 (CXD1256AR) generate a clock, sample and hold pulse, and clamp pulse required for CCD driving by inputting a 1820 f_H clock and HD and VD pulses output from a sync signal generator. DXC-930/930P/960MD uses spatial offset technology for CCD adhesion. The phases of CCD driving clocks must be shifted 180 degrees between channels G, and R and B. Therefore, IC2 is used for channel G, and IC7 for channels R and B.

Each clock used in the DXC-930/930P/960MD is described below.

- CL:

910 f_H clock. Driven by IC4 and IC5 so that the phase is shifted 180 degrees between channels G, and R and B.

- H1 and H2:

Horizontal transfer block driving clock of CCD imager. Channel G is driven directly, and channels R and B drive IC8 as a driver.

- LH1:

Horizontal transfer block's final driving clock of CCD imager.

- XV1 to XV4, XSG1, and XSG1:

Vertical transfer block driving clock of CCD imager. These clocks are sent through drivers IC1, IC3, and IC6 to the PA-133 and PA-134 board.

- X_{SUB}:

Charge sweep pulse for electronic shutter control. This clock is sent through drivers IC1, IC3, and IC6 to the PA-133 and PA-134 board. The shutter speed is controlled by a microcomputer on the AT-69 board.

- RG: Reset gate pulse

- CLP1 and CLP2: Clamp pulse

- XSHP and XSHD:

Sample and hold pulse for signal separation

- WEN:

Write enable. Trigger pulse during low-speed shutter (long-time exposure).

(2) CCD vertical transfer clock driver

IC1, IC3, and IC6 (CXD1250N) drive XV1 through XV4, XSG1, XSG2, and XSUB clocks for CCD vertical transfer block driving. The DXC-930/930P/960MD is a three-tube CCD camera, so it requires vertical transfer clock drivers for channels R, G, and B. Therefore, IC1 is used for channel G, IC3 for channel B, and IC6 for channel R.

(3) CCD horizontal transfer clock driver (For channels R and B)

IC8 (MC74AC04MR) is a CCD horizontal transfer clock driver for channels R and B.

In the DXC-930/930P/960MD, a horizontal transfer clock in channel G is directly driven by TG IC because of its single channel. To drive channels R and B directly by TG IC, IC8 (MC74AC04MR) is mounted as a driver circuit because of its higher load. The H1 output signal of IC7 is thus inverted using IC8 to produce an H2 signal. Similarly, the H2 output signal of IC7 is inverted using IC8 to produce an H1 signal.

(4) 910 f_H phase operation circuit

The 910 f_H phase operation circuit consists of IC4 (SN74HC74ANS) and IC5 (SN74HC00ANS). This circuit is required to operate two TG IC circuits with phase difference of 180 degrees because the spatial offset technology described previously is used. IC5 has the corresponding function. Channel G must be delayed (180 degrees) in phase with respect to channels R and B. IC4 has the function in this case.

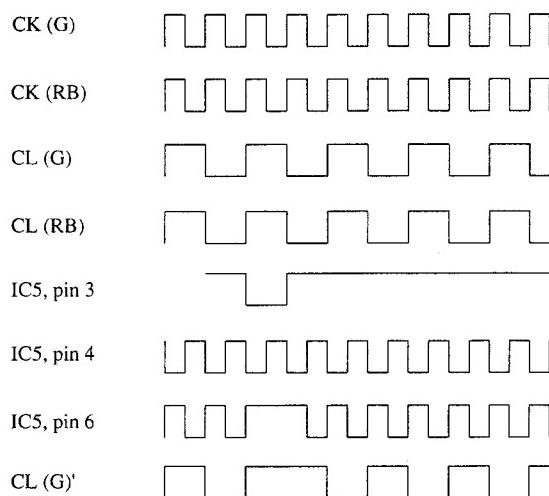
A 1820 f_H (\approx 28 MHz) clock with same phase is input to pins 64 (CK) of IC2 and IC7, and a 910 f_H (\approx 14 MHz) clock is output from pin 58 (CL). At that time, the CL clock in each channel is in-phase or opposite-phase. The CL clock is stabilized when it is in-phase or opposite-phase. As described previously, however, the CL clock in both channels must be opposite-phase. The CL clock must be forcibly set to the opposite phase by IC5 when it starts with in-phase during the power on sequence.

A CL (G) clock is input to pin 2 of IC5, and a CL (RB) clock is input to pin 1. The input clocks are then passed through a NAND gate. If the CL (G) and CL (RB) clocks are opposite-phase, the NAND gate output signal at pin 3 of IC5 is set high. If they are in-phase, a corresponding pulse is output. This pulse is input to pin 5 of IC5 and NANDed with the clock input to pin 4 of IC5. The output pulse at pin 6 of IC5 then becomes a dropout clock.

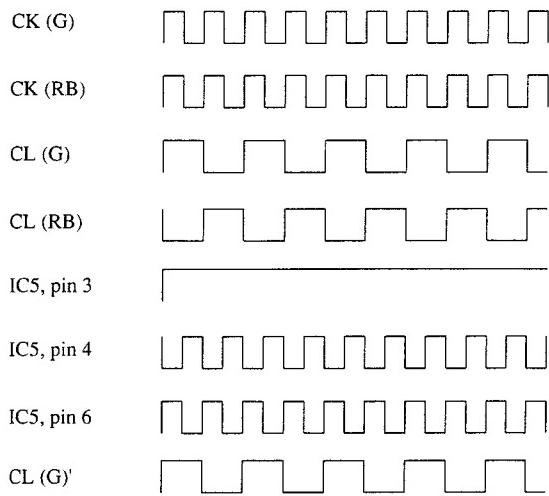
By using this pulse as a clock for channel G, the CL (G) phase is shifted 180 degrees with respect to the CL (RB) phase (opposite-phase). The output signal is set high even if the next CL (G) and CL (RB) clocks are NANDed. Therefore, dropout pulse KP is not output and stabilized in this state. The CL (G) phase must be also delayed with respect to the CL (RB) phase at all times. This operation is performed using IC4.

Timing Chart

- 1 When CL (G) and CL (RB) clocks are in-phase



- 2 When CL (G) and CL (RB) clocks are opposite-phase



(5) LH1 negative power supply circuit

Pin 21 (VEE) of CXD1256AR is a -4 V power pin for LH1. Q4 and Q9 produce a -4 V power from the -9 V power and supply it to this pin.

(6) RGL bias adjustment circuit

The RGL bias adjustment circuit consisting of Q3, Q7, and Q8 adjusts the bias of a reset gate (RG) pulse. The RGL value varies depending on CCD imagers. This circuit thus adjusts the RG bias to the optimum value.

(7) V_{SUB} voltage supply circuit

A circuit primarily consisting of Q1 and Q2, a circuit primarily consisting of Q5 and Q6, and a circuit primarily consisting of Q10 and Q11 supply a specified voltage to the overflow drains of CCD imagers for channels G, B, and R. The Q1 and Q2 pair, Q5 and Q6 pair, and Q10 and Q11 pair are regulators that use the V_{SUB} control voltage as a reference voltage.

The V_{SUB} control voltage can be changed in the range of approximately 1.6 to 5.0 V using RV1, RV3, and RV6. It is set so that the overflow drain of the CCD imager becomes a specified voltage. This voltage value varies depending on the CCD imagers. Adjustment is thus required.

In the shutter mode, the charge storage time can be controlled by adding a charge sweep pulse corresponding to the shutter speed to this DC bias. The period in which no charge sweep pulse is output in the shutter mode is defined as exposure time. The exposure time corresponds to the shutter speed. Therefore, this pulse is not output in the normal mode (shutter OFF).

4-3. PR-158/158P BOARD

The PR-158/158P board consists of the circuits below.

- Input amplifier
- Processing circuit (IC8: μPC2372)
- Color-bar generator
- Chroma signal generator
- Y signal and aperture signal circuits

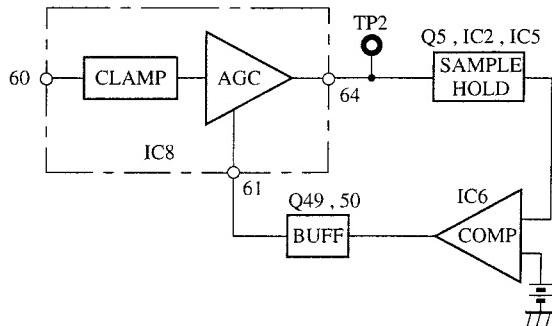
(1) Input amplifier

Since the circuit configuration in R, G, and B channels is almost the same, only the G channel is described below. Trap filter FL2 eliminates a 14-MHz video signal component from channel B. The 300 mV voltage at TP7 is used as an input reference voltage.

An inverting amplifier consists of Q23, Q24, Q17, and Q18. The reference pulse from the AT board is mixed using Q18. Channels R and B select the gain during color temperature conversion by turning on or off Q8 and Q38. In the C TEMP mode of the camera, Q8 is turned on and Q38 is turned off when the color temperature is 3200 K. Q8 is turned off and Q38 is turned on when it is 5600 K. Q82 and Q83 clip it at 1 Vp-p when a high-luminance signal is input. The luminance level can be adjusted using an electronic volume control.

(2) Processing circuit

① GAIN: STEP (Fixed gain mode)



A negative video signal is input from pin 60 of IC8, clamped, then amplified in an AGC amplifier. The amplified signal (330 mV reference voltage at TP2) is input to a sample and hold circuit consisting of Q5, IC2, and IC5. The input signal processes the level of a reference pulse input during vertical blanking period as a DC value. The signal is then compared in IC6 and sent through buffers Q49 and Q50 to pin 61 of IC8. In this case, the gain (including a temperature characteristic) is made constant at all times.

In a gain of +18 dB for 0 dB, the reference pulse input from the AT board is input with the level reduced to 1/8. When the gain is set from 0 dB to +18 dB, the reference pulse decreases and the DC output increases in comparator IC6. The gain in IC8 then increases.

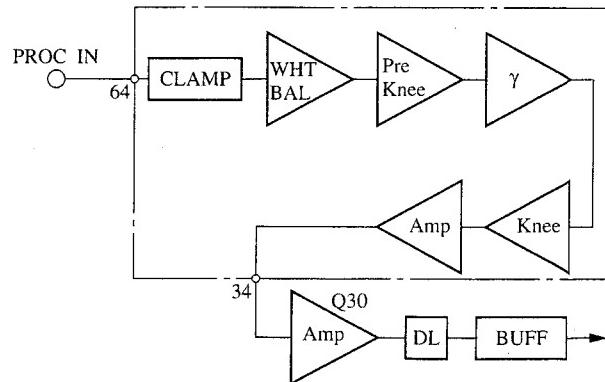
To track the gain in channel G, the values in channels R and B are compared with the hold value from pins 55 and 70 of IC8, with the sample and hold value of a G-channel reference pulse as reference. The comparison result is input to IC8. Limiters Q49 (pin 3) and Q50 (pin 1) determine the minimum and maximum gains.

② GAIN: AGC

The signals output from TP2, TP3, and TP5 are passed through buffers Q19, Q4, and Q40 and mixed in Q25. The mixed signals are sent to clamping circuit Q28 and output to TP10. The output signal is then integrated in R65 and C44, compared in IC6, and input to IC8.

For the STEP (fixed gain mode) and AGC selection, the DC value of a reference pulse and the integrated value of an RGB mix signal are selected using IC3 and IC4.

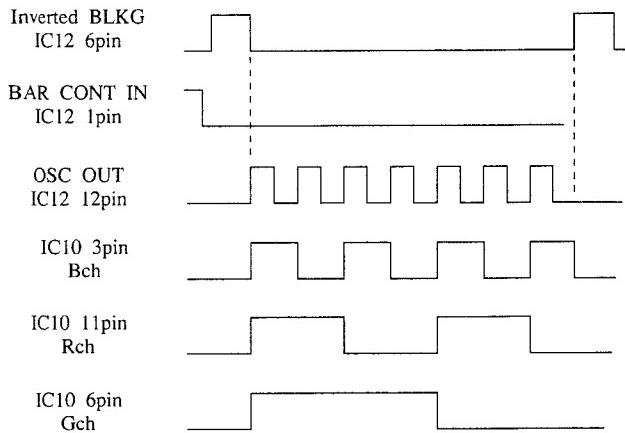
③ Processing circuit



The circuit configuration in channel G is described below.

The signal that is input to IC8 again is clamped and passed through a WHT BAL amplifier. The signal is then passed through a pre knee circuit, γ circuit, and knee circuit and output from pin 34. The gain in this stage is approximately three times the normal. A signal of 1 Vp-p is output when a signal of 330 mVp-p is input. This gain is determined by changing the WHT BAL amplifier using an electronic volume control. A color-bar signal that is amplified in Q30 and output through a delay line to Q32 as a G OUT signal is mixed using Q30.

(3) Color-bar generator



A BLKG pulse is input to pin 3 (4, 5) of IC12, inverted, and input to pin 2 of IC12. A monostable multivibrator is activated when a BAR CONT signal (at pin 1 of IC12) is low. An OSC OUT signal is then input to pin 11 of IC11, and a pulse shown in the figure above is output from IC10. A character signal is also input to IC10, and each signal in channels R, G, and B is mixed in Q13, Q30, and Q46.

(4) Chroma signal generator

A color-difference signal and Y signal are input from the R, G, and B OUT pins (TP6, TP9, and TP13) to IC8 via a matrix resistor (consisting of R136 through R154) and output from pins 22, 18, and 14.

An R-Y (I) signal is inverted in Q56, passed through a lowpass filter consisting of R190, L12, C85, and C86, and amplified in Q60. The amplified signal is input through clamping circuit Q61 to IC14 (subcarrier modulation IC). Similarly, a B-Y (Q) signal is input from Q64, amplified in Q68, and input through clamping circuit Q69 to IC14.

A BF signal is added to each signal, and the burst phase is determined by the signal level. A chroma signal generated in IC14 is passed through bandpass filter FL4 and amplified in Q54 and Q55. The amplified signal is output to pin 13 of connector CN2 and input to the IF board.

(5) Y signal and aperture signal circuits

A Y signal generated in IC8 is output from pin 14 of IC8, amplified in Q77 and Q75, and input to pin 42 of IC17. The signal level is determined by the DC control (electronic volume control) at pin 30 of IC17. A DTL signal (input to pin 40 of IC17) and aperture signal in this Y signal are mixed. A Y OUT signal is then output from pin 22 of IC17, passed through three delay lines (100 m x 3) from Q84, and amplified in Q80. As a result, a signal of approximately 500 mVp-p is output from pin 15 of connector CN2 and input to the IF board. Delay lines DL6 through DL8 are used to align the phase of Y and chroma signals.

The R- and G-channel signals from Q12 and Q29 are mixed in Q70, passed through delay line DL5, and amplified in Q65. The amplified signals are input through buffer Q63 and clamping circuit Q74 to delay line DL4. The signal passed through delay line DL4 and the reflected signal are calculated to produce an aperture signal in IC17.

A DTL signal generated on the IF board is input from pin 1 of connector CN1. The input signal is sent to pin 8 of IC8, amplified in IC8, and output from pin 77 of IC8. The signal is then input through buffer Q52 to pin 40 of IC17 and mixed with a Y signal. DTL and aperture signals are mixed in Q53 to produce an RGB mix signal. The resultant signal is output to pin 17 of connector CN2.

(6) D/A converter

The data signal from the AT board is digital-to-analog converted in IC13, IC16, and IC18 to produce various control signals in IC8 and IC17.

4-4. IF-354/354P BOARD

The IF-354/354P board primarily consists of the circuits below.

- Detail signal circuit
- Video signal driver circuit
- Sync control circuit

(1) Detail signal circuit

The detail signal circuit generates H and V detail signals. It determines the mix ratio so that H : V is 1 to 1 using RV3. This circuit then sends the signals to the PR-158/158P board. For the H detail signal, G IE IN and R IE IN signals are adjusted and mixed using RV2 so that the moire in a detail signal is minimum. The resultant signal is differentiated two times using a two-stage filter to produce the H detail signal. For the V detail signal, a signal obtained when a G IE IN signal is 1H-delayed by CX15504M is produced. The delay time of the signal is finely adjusted using a filter after it is amplified. The 1H-delayed signal is mixed with the inverted former G IE IN signal in Q14 to produce the V detail signal. RV1 is adjusted so that signals other than a detail component are eliminated using RV1.

(2) Video signal driver circuit

The detail signal returned from the PR-158/158P board is resistance-mixed with the R, G, and B OUT signals (1.0 V when 100%) from the PR-158/158P board. In channel G, the sync signal (adjusted to 300 mV (in 75-ohm termination) during output from the camera) whose level is adjusted using RV7 is mixed. The signal is then level-adjusted using RV4, RV5, and RV6 (adjusted to 1.4 V when 100%) and sent to the CN board by a driver circuit.

Y and C signals are sent through the driver circuit to the CN board, respectively. The Y and C signals passed through the driver circuit are resistance-mixed to produce a VBS signal and output through the driver circuit to the CN board.

(3) Sync control circuit

The sync control circuit selects a sync signal by the SYNC CONT voltage from the CN board and outputs it by a driver circuit.

4-5. AT-69 BOARD

<Outline>

The AT-69 board consists of the circuits below.

- Auto white balance
- Auto black balance
- Auto iris
- Electronic control
- Character generator
- Zoom and focus control
- Others

The AT-69 board performs various system controls such as an auto white balance, auto black balance, CCD iris, electronic shutter control, auto iris control, and AGL by using a microcomputer. This board reads the six switches on the rear panel and displays the state on the screen as a character to perform all the user controls. It also interfaces with the camera control unit (CCU) in series and controls the electronic control.

Eight-bit microcomputer IC20 (HD63B05Y0E53F: Hitachi) primarily performs the system controls above. The HD63B05Y0 is a CMOS eight-bit single chip microcomputer in which an 8K-byte ROM is masked. Fig. 1 shows the block diagram of the microcomputer.

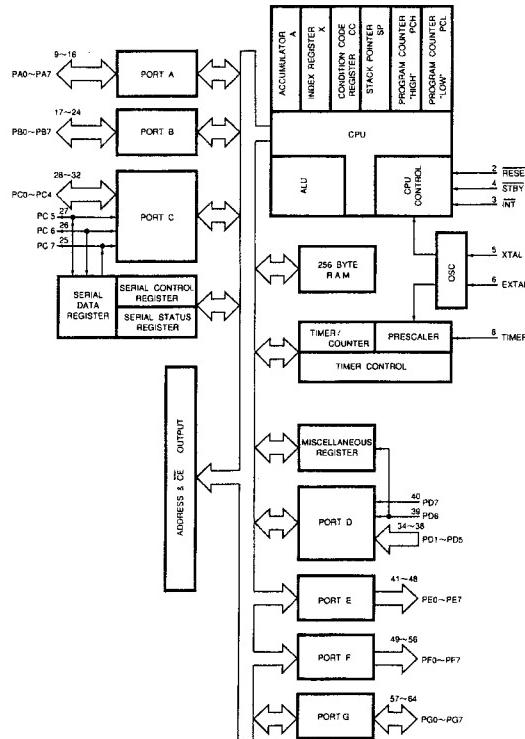


Fig. 1 Block Diagram of Microcomputer

The major features of this microcomputer are as follows:

- 256-byte RAM
- 32 I/O ports
- Seven input ports
- Sixteen output ports
- Two internal timers
- Internal serial interface circuit
- Interrupts:
External port 2, timer 2, serial port 2, and software 1
- Minimum instruction time: 1 μ sec

Table 1 shows the pin name and function of this microcomputer.

EEPROM IC21 (M6M80011AFP) is connected to this microcomputer. The auto white control data, auto black control data, internal control data, user control data displayed on the screen, and electronic control data are memorized in the EEPROM.

The M6M80011AFP is a 1024-bit CMOS EEPROM that enables an electric erasure and electric program. Fig. 2 shows the block diagram of the EEPROM.

The major features of the EEPROM are as follows:

- 5 V single power
- Clock sync serial input/output
- Three-port control (minimum) (Can connect CS and RESET, and D1 and D0.)
- Internal sequential controller
- Number of erasure and write times: 100000
- Data storage: 10 years

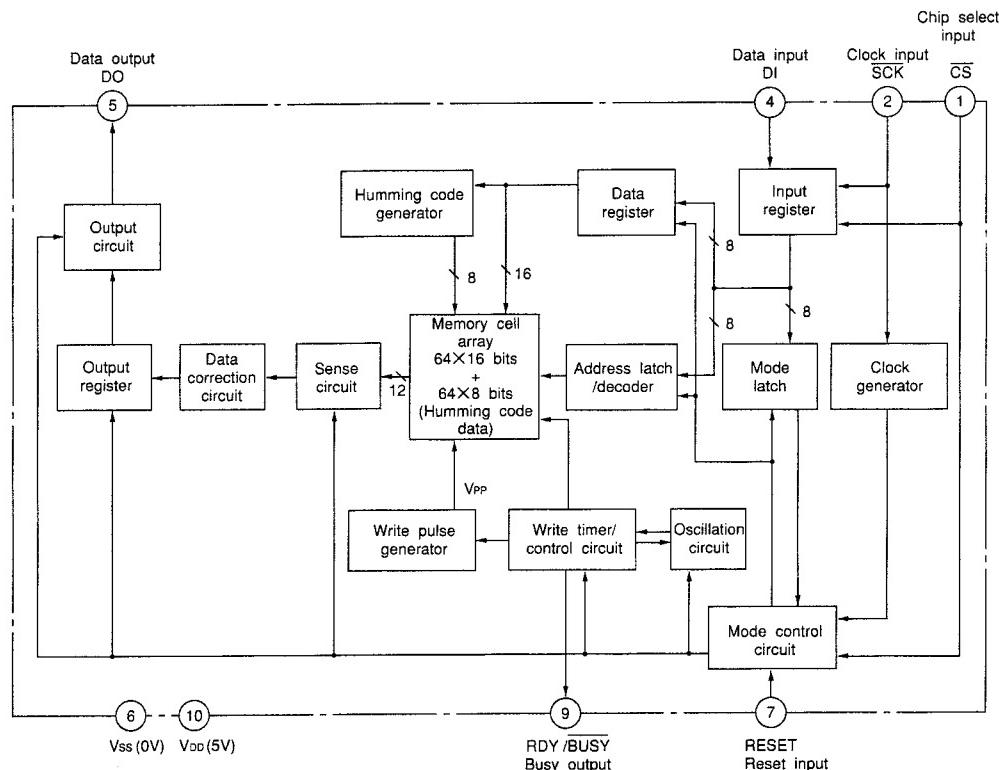


Fig. 2 Block Diagram of EEPROM

No.	PORT NAME	I/O	FUNCTION & REMARKS
1	TIMER	I	TIMER INTERRUPT CLOCK IN (VD)
2	PA7	O	D/A CONV. CS-5
3	PA6	O	D/A CONV. CS-4
4	PA5	O	D/A CONV. CS-3
5	PA4	O	D/A CONV. CS-2
6	PA3	O	D/A CONV. CS-1
7	PA2	O	SHUTTER STROBE
8	PA1	O	SERIAL DATA TO D/A, SHUTTER, CHARA GEN.
9	PA0	O	SERIAL CLOCK TO D/A, SHUTTER, CHARA GEN.
10	PB7	I	OPE/ADJ SELECT, SET=OPE
11	PB6	I	NTSC/PAL SELECT, SET=PAL
12	PB5	I	A/D CONV. IN
13	PB4	O	CHARA STROBE
14	PB3	O	CHARA CS
15	PB2	I	EEPROM BUSY
16	PB1	O	EEPROM CS
17	PB0	I	EEPROM DATA IN
18	PC7	O	LADDER R2
19	PC6	O	LADDER R3
20	PC5	O	LADDER R4
21	PC4	O	LADDER R5
22	PC3	O	LADDER R6
23	PC2	O	LADDER R7
24	PC1	O	LADDER R8
25	PC0	O	LADDER R9
26	Vcc	I	DC 5V IN
27	PD1	I	
28	PD2	I	PRESET INPUT FOR ADJ
29	PD3	I	0/18dB SELECT, CLR=0dB, SET=18dB
30	PD4	I	18dB CONT INT/EXT, SET=INT, CLR=EXT
31	PD5	I	GEN LOCK INT/EXT IN
32	PD6	I	BLKG IN
33	PD7	I	VD IN
34	PE0	O	S/H CHARGE RESET SET=CHARGE RESET
35	PE1	O	S/H TIME SELECT, SET=PEAK (WHT) S/H

No.	PORT NAME	I/O	FUNCTION & REMARKS
36	PE2	O	S/H AREA SELECT 1
37	PE3	O	S/H AREA SELECT 2
38	PE4	O	S/H AREA SELECT 3
39	PE5	O	S/H CHANNEL SELECT 1
40	PE6	O	S/H CHANNEL SELECT 2
41	PE7	O	S/H CHANNEL SELECT 3
42	PF0	O	A/D SELECT 1
43	PF1	O	A/D SELECT 2
44	PF2	O	CCU ID (ZOOM & FOCUS) SET=CCU MODE
45	PF3	O	IRIS CLOSE OUT CLR=IRIS CLOSE, SET=OPEN
46	PF4	O	CABLE COMP. FOR GEN LOCK, SET=ON, CLR=OFF
47	PF5	O	AGC/STEP GAIN SELECT, SET=AGC, CLR=STEP
48	PF6	O	
49	PF7	O	SERIAL DATA OUT TO CCU
50	PG7	O	
51	PG6	O	IRIS AUTO/MANU OUT, SET=MANU, CLR=AUTO
52	PG5	O	VBS Y/C SELECT, SET=VBS, CLR=Y/C
53	PG4	O	C. TEMP, SET=5600K, CLR=3200K
54	PG3	O	SC 0/180 CONT., SET=180, CLR=0
55	PG2	O	SYNC ON GREEN, SET=ON, CLR=OFF
56	PG1	O	BARS, SET=ON, CLR=OFF
57	PG0	O	FLD/FRM, SET=FRAME MODE, CLR=FIELD MODE
58	Vss	I	GND IN
59	RESET	I	SYSTEM RESET PORT
60	INT	I	SERIAL INTERRUPT
61	STBY	I	STANBY IN
62	XTAL	I	4MHz OSC
63	EXTAL	I	4MHz OSC
64	NUM	I	

Table 1 Pin Name and Function

(1) Auto white balance circuit

The white balance is established by making the level of R and B signals the same as that of a G signal when a white object is shot.

The R, G, and B signals output from the PR-158/158P board are input to generate R-G and B-G signals. Assume that the peak value of a Y signal produced when the R, G, and B signals are mixed is a white level. The R-G and B-G signals are sampled at the peak of the Y signal to obtain an error signal in the white level. The error signal is A/D converted and input to the microcomputer as 8-bit data. The microcomputer calculates a gain control signal from this error signal and outputs it. The output signal is input to the D/A converter to control the R and B gains on the PR-158/158P board by an analog output signal. The white balance is then established.

Actually, the level of the peak value is checked before white balance operation to judge whether the input level is proper. The white balance operation is initiated after the input level is judged to be proper.

① Operation of input value level check

The signal input to the base (G-channel) of Q3 is passed through buffer Q3 and clamped in Q5 using an HD pulse. The clamped signal is passed through buffer Q2, then sampled and held in IC9 using a Y peak signal. The Y signal from the PR-158/158P board is input to the base of Q12. The input signal is sent through buffer Q12 to clamping circuit Q14 and input to pin 3 of IC15 after a negative unwanted signal is sliced in NAM circuit Q13.

IC15 (2/3) cuts the superimposed reference pulse from the PR-158 board using a blanking signal. After that, the peak level is held in Q20 and D4, and a Y peak pulse is obtained in Q17. The Y peak pulse input to pin 15 of IC14 is GATEed in the detection frame shown in Fig. 3 and output from pin 3 of IC14. The pulse is then used as a sample and hold pulse of IC9. The detection frame is obtained by controlling an IC using a microcomputer. The G signal that is sampled and held using a Y peak signal is sent through analog switch IC5, IC7, and Q4 to pin 5 of IC11. The reference voltage (REF DC) (approximately 0.6 V) obtained at the emitter of Q15 is sent through IC5, IC7, and Q4 to pin 2 of IC11. IC5 is switched using a microcomputer. A G-REF DC signal is obtained at pin 10 of IC11, amplified in IC11, then input to pin 14 of IC13. Analog switch IC13 selects an A/D conversion input signal. The input signal at pin 14 of IC13 is input to pin 13 of IC11. The resultant signal is A/D converted using a sequential A/D converter consisting of comparator IC11 (4/4) and microcomputer IC20 so as to load data into the microcomputer. Limiters D3 and D2 limit the amplitude of a signal so that it does not change in the range exceeding 0 to 5 V.

The G-REF DC signal loaded into a microcomputer is compared with the data that is written in advance in EEPROM. The comparison becomes invalid when the output level is less than 40 IRE (PAL : 300 mV). The white balance operation is initiated when the output level is more than 40 IRE (PAL : 300 mV).

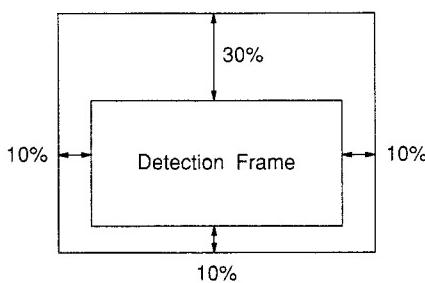


Fig. 3 White Peak Detection Frame

② White balance operation

As described in step 1, R, G, and B signals are simultaneously sampled and held in IC9. Error signals G-G, R-G, and B-G can be obtained at pin 10 of IC11 when IC5 and IC2 are switched using a microcomputer. The G-G signal is memorized in the microcomputer as a reference voltage. The R-G and B-G signals are also memorized in the microcomputer as an 8-bit digital signal. The G-G and R-G error voltages memorized in the microcomputer are compared. If the difference is within one bit (the least significant one bit of an 8-bit signal), the white balance is judged to be established. If the white balance is established, the microcomputer proceeds to the next step without correction. If not, that is, Δ exceeds "1" ($\Delta > 1$) in the expression below, the R gain is changed and the gain of the R signal is adjusted to establish the white balance.

$$(G-G) - (R-G) = \Delta$$

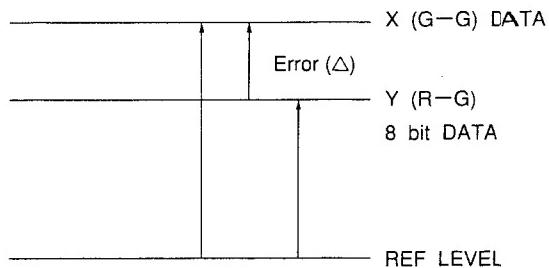


Fig. 4 Error Voltage

The R gain signal is serial data. It is sent from the microcomputer to D/A converter IC16 on the PR-158/158P board and converted into an analog voltage. The resultant signal is output to the gain control circuit. At that time, the microcomputer changes an 8-bit digital signal to 00H through FFH by the Δ value. However, the operation becomes invalid when the difference between the R-G and G-G signals is great and when the white balance is not established even if "00H" or "FFH" is output. The R gain signal is repeatedly changed until the difference between the R-G and G-G signals becomes within one bit. If the difference is within one bit, the operation is judged to be satisfactory. This operation is done three times again. When it is judged to be satisfactory four times in all, the four-times operation data is compared and arranged in the descending order. The mean value of the two data items in the middle is used as the final R gain data. The R and B gains are corrected by one sample-and-hold operation. Channel B is also controlled in the same manner as channel R (Fig. 5). After the white balance operation is completed, the R and B gain data are written in the EEPROM and messages "WHITE:OK" and "WHITE:NG" are output on the monitor. The auto white balance operation is then completed.

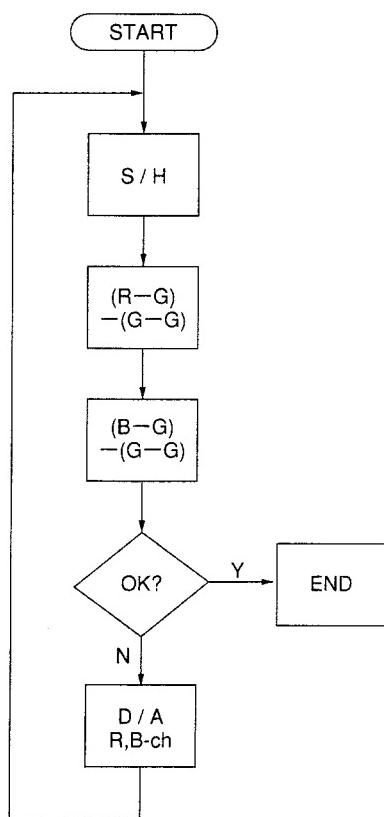


Fig. 5 White Balance Operation

(2) Auto black balance

The auto black balance operation is performed in the procedure below.

- 1) The iris of a lens is closed forcibly. The light amount is detected to confirm that the iris is closed electrically.
- 2) The black tracking operation is performed to stabilize it so that the output black level (pedestal level) does not fluctuate when the gain select switch is set from 0 dB to 18 dB with the lens closed. The auto black tracking is performed using an R signal. Next, it is performed using a B signal, then G signal.
- 3) The black balance operation is performed. The black levels in all the channels of R, B, and G signals are made same. The black levels of G-G and R-G signals are compared with the lens closed. If an error occurs, the black level of the R signal is corrected. Next, the black levels of G-G and B-G signals are compared. If an error occurs, the black level of the B signal is corrected. As a result, the black level between channels is established.

The auto black operation is completed when the three operations above are completed.

① Lens iris close operation

To establish auto black balance, the external light must be shut off. Therefore, the iris must be closed when establishing the black balance. Pin 45 of microcomputer IC20 is kept low if the black balance switch is set to ON when an auto iris lens is used. A high-level signal is then output from Q22 and sent to the lens as an iris close signal. Whether the lens iris is completely closed at that time is judged by the G-REF DC signal detection. The microcomputer selects so that IC5 obtains an R-REF DC signal. In this case, the absolute value of the G-REF DC signal is not detected to judge whether the lens iris is closed. By using an electronic shutter and judging from the relative value, precise detection can be done not depending on a change in temperature and a change with the passage of time. As shown in Fig. 6, the shutter speed is first set to 1/60 (sec) to detect a G-REF DC signal, then 1/1000 (sec) for detection. If no change appears in the detection value, the lens iris can be closed.

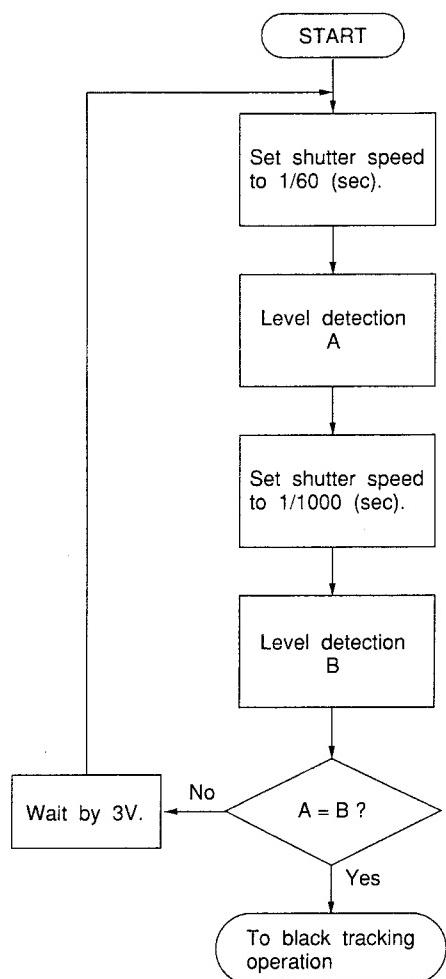


Fig. 6 Iris Close Check

② Black tracking operation

During black tracking operation, the pedestal levels of R, G, and B signals are stabilized so that they do not fluctuate when the gain select switch is set from 0 to 18 dB and vice versa with the iris closed. IC20 is switched by a microcomputer after confirming that the iris is closed. An R-REF DC signal, G-REF DC signal, and B-REF DC signal can be then obtained sequentially. Data is first A/D converted with the gain set to 0 dB. The A/D converted data is memorized in the microcomputer. Next, the gain is set to 18 dB. The data is then memorized.

A black tracking control signal is produced by the difference of the data when the gain select switch is set to 0 dB and 18 dB. The signal is then sent to D/A converter IC12 by serial data to produce an analog output signal. The resultant signal is mixed with a black tracking preset voltage when it is input to IC10. A black tracking pulse is then obtained from IC10 using an HD pulse. The pulse is amplified in IC8 and sent to the PR-158/158P board. This operation is repeatedly performed when the gain select switch is set from 0 to 18 dB and vice versa. The difference of the data is controlled so that it is within 11 bits.

③ Black balance operation

During black balance operation, the black level of a G signal is sequentially compared with the black levels of R and B signals with the iris closed. G-R and G-B signals are then obtained. R and B pedestal signals are output to the PR-158/158P board to adjust the pedestal levels of the R, G, and B signals so that the difference between the G-R and G-B signals is zero ("0"). A reference pulse is first produced by a G-G signal, and an R-G signal is A/D converted. The difference between the G-G and R-G signals is D/A converted to produce an R pedestal signal and output to the PR-158/158P board. A B-G signal is also treated in the same manner as the above. These operations are the same as the white balance operation except that the iris is closed or opened.

(3) Alarm displays

During auto white balance and auto black balance operations, the alarm displays below are output on the monitor.

Display	Description
WHITE : OK	Indicates that the white balance was established.
WHITE : NG	Displayed when the white balance is not established for a fixed time period. The circuit, lighting condition, or adjustment is defective.
WHITE : NG LEVEL : LOW	Displayed when the video output level is too low (less than about 40 IRE (PAL : 300 mV)).
WHITE : NG LEVEL : ???	Displayed when the video output level does not change at all during white balance operation.
WHITE : NG C. TEMP : HI	Displayed when the color temperature is too high. Change the lighting condition or color temperature.
WHITE : NG C. TEMP : LOW	Displayed when the color temperature is too low. Change the lighting condition or color temperature.
BLACK : OK	Indicates that the black balance was established.
BLACK : NG	Displayed when the black balance is not established. The circuit or adjustment is defective.
BLACK : NG IRIS : CLOSE?	Displayed when light goes in the lens.

Table 2 Alarm Displays

(4) Character generator

IC22 (μ PD6142G) generates a character on the monitor. The data for the display is input from a microcomputer. Each alarm, user control status, adjustment data are displayed. Fig. 7 shows the block diagram of the character generator.

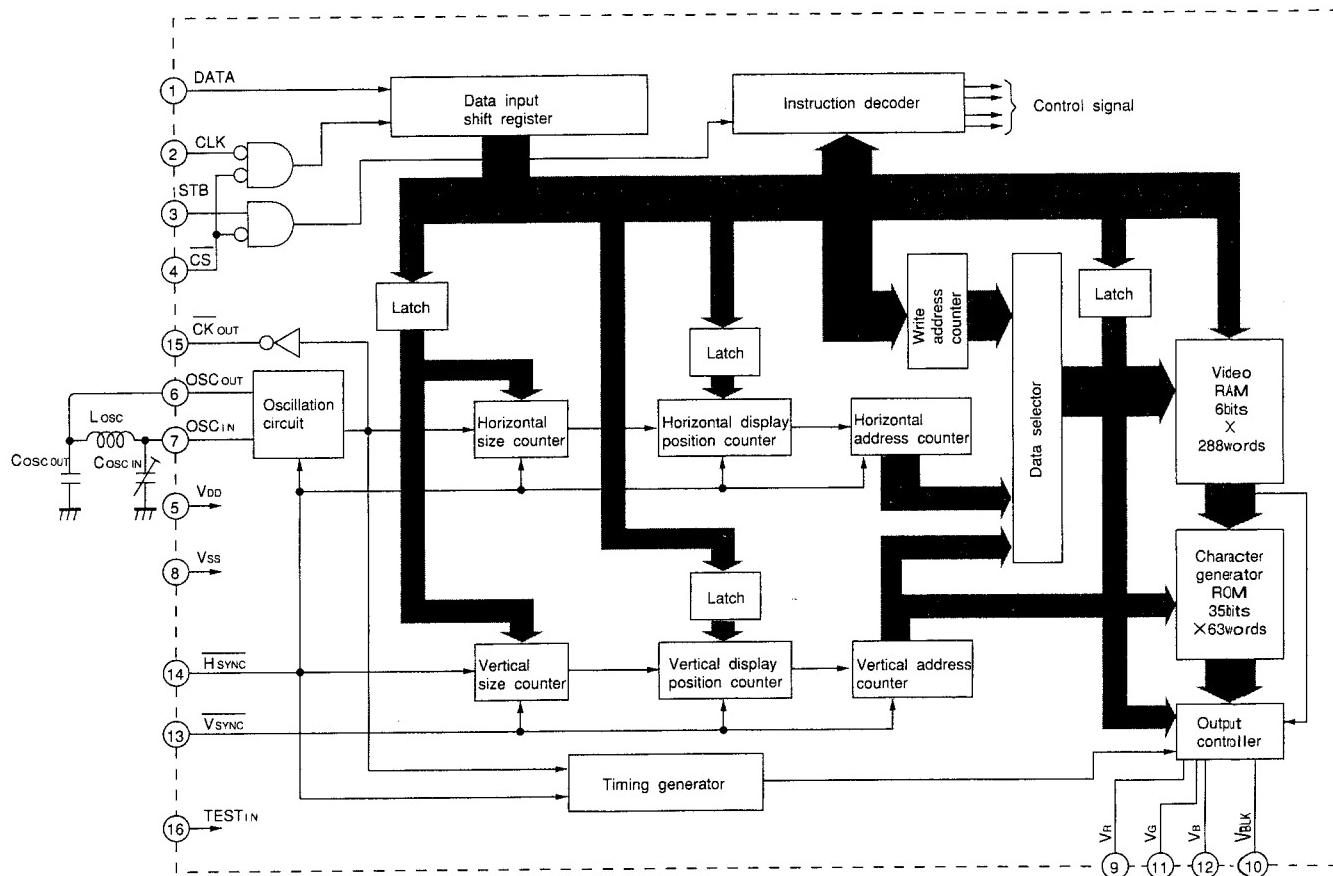


Fig. 7 Block Diagram of Character Generator

(5) Electronic control and adjustment

Electronic control are used instead of semi-fixed controls for the adjustment and user control. ADJ NO. and DATA are displayed when switch SW1 is set to "ADJ". During adjustment, an analog voltage is output to D/A converters IC12 and IC23, and data is simultaneously written in EEPROM IC21.

Table 3 shows the electronic control list.

Adjust NO.	Data Name	Remarks	D/A OUT	BOARD
1	R. Black Tracking		IC12 ⑯ pin	AT-69
2	G. Black Tracking		IC12 ②	AT-69
3	B. Black Tracking		IC12 ③	AT-69
4		Not using		
5	Y Level		IC13 ⑮	PR-158/P
6	Sync Level		IC13 ⑯	PR-158/P
7	Set Up Level		IC13 ②	PR-158/P
8	Enable White.Clip		IC13 ③	PR-158/P
9	AGC Max Level		IC13 ④	PR-158/P
10	AGC Min Level		IC13 ⑤	PR-158/P
11	*AGC / Step	AGC Reference Level Setting	IC13 ⑥	PR-158/P
12	*Step / AGC	Step Reference Level Setting	IC13 ⑦	PR-158/P
13	Master WHT. Bal		IC16 ⑯	PR-158/P
14	R WHT. Bal		IC16 ②	PR-158/P
15	B WHT. Bal		IC16 ③	PR-158/P
16	R. Pre Knee		IC16 ⑥	PR-158/P
17	G. Pre Knee		C16 ⑦	PR-158/P
18	B. Pre Knee		IC16 ⑧	PR-158/P
19	R. Pedestal		IC16 ⑨	PR-158/P

Adjust NO.	Data Name	Remarks	D/A OUT	BOARD
20	G. Pedestal		IC16 ⑫	PR-158/P
21	B. Pedestal		IC16 ⑬	PR-158/P
22	Gamma		IC18 ③	PR-158/P
23	Knee		IC18 ④	PR-158/P
24	White. Clip		IC18 ⑤	PR-158/P
25	Aparture Level		IC18 ⑥	PR-158/P
26	Aparture Crisp.		IC18 ⑦	PR-158/P
27	DTL-MAX		IC18 ⑧	PR-158/P
28	DTL Level		IC18 ⑨	PR-158/P
29	DTL Crisp.		IC18 ⑬	PR-158/P
30	Iris Reference		IC23 ④	AT-69
31	SC. Phase		IC23 ⑤	AT-69
32	CCD-Iris Level		*	AT-69 (IC20)
33	Spare EVR for AT	Not using		
34	R AGC clip	Rch clip level at AGC input	IC13 ⑨	PR-158/P
35	B AGC clip	Bch clip level at AGC input	IC13 ⑫	PR-158/P
36				
37	Peak min.	White balance min. data	*	AT-69 (IC20)
38	Iris close	Iris close margin data	*	AT-69 (IC20)

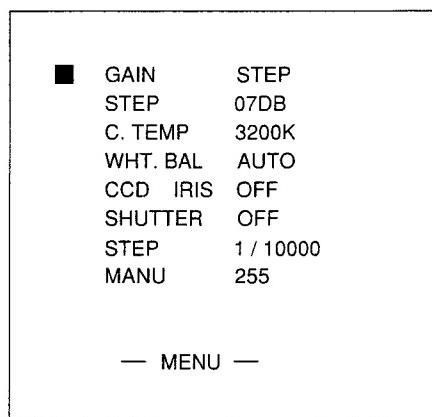
* : Constant in IC20 / AT-69

Table 3 Electronic control list

(6) User control

As shown in Fig. 8, the user control state such as a gain control, detail control, and shutter control is displayed on the monitor to control data using six switches on the rear panel. Voltage values are set to the six switches, respectively. These voltage values are A/D converted, then read by a microcomputer.

The input voltage at pin 2 of IC13 is passed through IC13 and A/D converted by IC11 and the microcomputer to judge which switch was pressed.



BARS	ON
M. PED	+12
DTL	-22
H. PHASE	128
SC	140
0/180	180
GAMMA	ON
G. SYNC	ON
FLD/FRM	FLD
D-SUB	VBS

Fig. 8 User Control

(7) Gain control circuit

The gain control is primarily performed on the PR-158/158P board. A reference pulse used for the gain control is controlled in this circuit. The reference pulse is shown in Fig. 9. The size of the reference pulse is controlled in an automatic gain control (AGC) and fixed gain by the microcomputer. The voltage at pin 12 of D/A converter IC12 is switched to 5 V in IC3 to produce a pulse. The pulse is then output from the emitter of Q1 to the PR-158/158P board. The switching pulse in IC3 is produced by ANDing HD and CLP1 pulses in IC19 (TC4S81f).

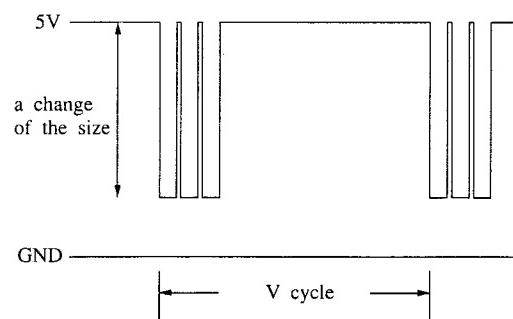


Fig. 9 Reference Pulse

(8) CCD iris

The CCD iris keeps the video output level constant by changing the shutter speed of the CCD. The Y signal from the PR-158/158P board is input to the base of Q12. The input signal is clamped in Q14, and the unwanted portion is sliced in NAM circuit Q13. The resultant signal is input to pin 1 of IC15 (1/3), where a reference pulse is cut. The signal is then passed through buffers Q24 and Q25 and rectified in R88 and C27. A Y REF DC signal is produced by switching IC5. The Y REF DC signal is A/D converted, and data is loaded into the microcomputer. This data is compared with the data that is memorized in advance in the EEPROM. The shutter speed is calculated so that the difference is zero ("0"). The calculated result is sent to the shutter speed control circuit on the TG-102/102P board by serial data. The video output level is controlled so that it is always constant.

(9) Auto iris

The Y signal input to the base of Q12 is sent to clamping circuit Q14. The unwanted portion is eliminated in NAM circuit Q13. A reference pulse is cut in IC15 (1/3). The resultant signal is input through buffer Q24 to pin 5 of IC1 (1/4). The input signal is buffered in IC1 (1/4), rectified in R8 and C5, then input to pin 2 of IC1 (2/4). In IC1 (2/4), the voltage output from pin 4 of D/A converter IC23 is input to pin 3. IC1 (2/4) also forms a loop so that the rectified value input to pin 2 is constant.

(10) Zoom and focus circuits

The zoom and focus can be controlled when a remote control unit (RM-930) and camera control unit (CCU) are connected.

① When remote control unit is connected

A ZOOM control voltage is input from the remote control unit to pin 2 of switch SW2. When SW2 is set to "ZF", the ZOOM control voltage is input to pin 2 of IC16 (1/3). Pin 10 of IC16 (1/3) is low when the remote control unit is connected. Therefore, the ZOOM control voltage is input to pin 3 of IC24 (1/2), amplified, then output from pin 1. The voltage changes in the range of 2 to 8 V. A FOCUS control voltage is also the same as the ZOOM control voltage.

② When camera control unit (CCU) is connected

Pin 10 of IC16 (1/3) is set high when the CCU is connected. The ZOOM control voltage sent from the CCU by serial data is sent to D/A converter IC23 and output from pin 6. The output signal is then input through IC16 to pin 3 of IC24 (1/2). The ZOOM control voltage from pin 1 changes in the range of approximately 2 to 8 V. A FOCUS control voltage is also the same as the ZOOM control voltage. When switch SW2 is set to "PT" during CCU connection, the PAN and TILT control voltages from the CCU are output from pins 8 and 9 of IC23 and sent through SW2 to pins 21 and 19 of connector CN2.

4-6. SG-194/194P BOARD

<OUTLINE>

The SG-194/194P board generates various sync signals. This board automatically sets the external sync mode when a genlock (VBS) signal is input from the outside, then outputs a sync signal synchronized with the genlock signal.

• Internal sync

For the NTSC system, the DC clock controlled by RV1 is sent through IC6 (CXD1216M) to buffer Q5 to control VCO CP1 and set a clock frequency. The 28 MHz clock is sent to the TG-102/102P board, frequency-divided by one half, then sent back. The clock is then input to pin 26 of IC10 (CXD1217M). Various pulses are then output with this clock as reference.

For the PAL system, the DC clock controlled by RV1 controls CP2. A 4 fsc signal is input to pin 10 of IC10. This signal is sent to phase comparator IC10 and output from pin 24 (H COM OUT). The output signal is then sent through IC6 to a low-pass filter (consisting of R37, R41, C22, and C24) and buffer Q5 to control VCO CP1.

• External sync (VBS genlock)

An EXT VBS signal is input from pins 4 and 2 of connector CN1. The EXT VBS signal is input from pin 4 of CN1 when it is input to the camera. The EXT VBS signal is input from pin 2 of CN1 when it is input to the camera control unit (CCU). The camera side has priority in this case. The VBS signal input to pin 4 of connector CN1 is input to pin 5 of IC1 (1/2) and amplified in IC1 (1/2). After that, the lower edge of a sync signal in the VBS signal is clamped to ground using C4 and D3. When the VBS signal is input to hold the DC component at the upper edge of a sync signal using C9, pin 11 of IC2 (2/3) is set low. The VBS signal is then supplied to the sync separation circuit.

The VBS signal input to pin 2 of connector CN1 is terminated in R4 and sent to pin 1 of IC1 (1/3). Pin 10 of IC2 (2/3) is set high when the extension distance of the camera and CCU is 200 m or 300 m. A cable compensation circuit consisting of C12, R14, C11, R13, C10, and R12 is then activated.

Q2 and Q1 is a floating amplifier that cancels the hum occurring during cable extension. The VBS signal is then sent through buffer Q3 to the sync separation circuit. The burst component in the VBS signal is passed through bandpass filter consisting of L3 and C15, amplified in Q4, and converted into an amplitude of 0 to 5 V using comparator IC5. R25 slightly contains hysteresis to prevent noise. The burst component output from pin 6 of IC5 is input to pin 17 of IC6. The burst component is compared with an internal subcarrier in IC6. The comparison output is sent to pin 1 of IC6 to pin 2 of IC7, where the VD period is extracted (because the V BLKG period of the burst component is lost, nothing to be compared exists, and an error occurs in the output of the comparator). The resultant signal is passed through a low-pass filter consisting of R35, R36, C20, and C21, amplified in operational amplifier IC8 (1/2), then input to the control voltage input pin of CP2 (4 fsc VCO), where an oscillated 4 fsc signal is input to sync signal generator IC10. As a result, an internal subcarrier is locked to the external subcarrier (burst). The subcarrier generated in IC10 is sent to the encoder using an SC phase shifter consisting of IC12 and IC13. The subcarrier from IC10 is input to pin 9 of IC13 (2/2) and output from pin 12 with the pulse width

changed. This pulse width can be changed by the external DC control. In this case, a feedback is established by IC12 to compensate for the temperature characteristic. The output signal is input to pin 2 of IC13, then output with the duty cycle set to 50 %. The 0/π selection can be performed by selecting Q and Q output signals using analog switch IC3 (1/3). The subcarrier phase can be continuously changed by changing the pulse width above. The phase of the encoder output subcarrier then coincides with that of the external subcarrier.

The sync signal in the VBS signal is amplified in Q10 through Q12 and sent through a low-pass filter consisting of R94 and C63 to sync separation circuit IC4. The sync signal is then input to pin 17 of IC6. The FH pulse output from pin 27 of IC10 is input to monostable multivibrator IC11 (1/2). The pulse width can be then changed by the external DC control. In this case, a feedback is established by IC8 (2/2) to compensate for the temperature characteristic. The pulse is then input to pin 15 of IC6 and compared with the external sync signal above. An output signal at pin 9 is passed through a low-pass filter consisting of R37, R41, C22, and C24 to control CP1 (VCO). As a result, the phases of an internal H pulse and external sync signal are kept constant. These phases can coincide with each other by controlling the pulse width of H phase shifter IC11 (1/2).

• Generation of CLP5

A CLP5 pulse is used to clamp the AGC circuit on the PR-158/158P board. It has the phase relation shown in Fig. 1. An HD pulse at pin 8 of IC10 is integrated in R84 and C56, then input to IC14. The input pulse is inverted in IC14 and integrated in R85 and C57. The pulse width is controlled by monostable multivibrator IC11 (2/2). The resultant pulse is output from pin 6.

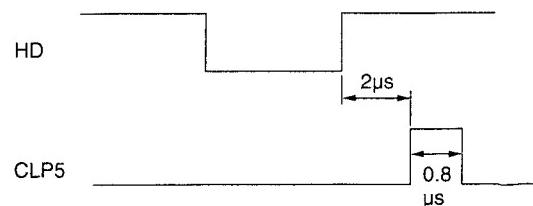
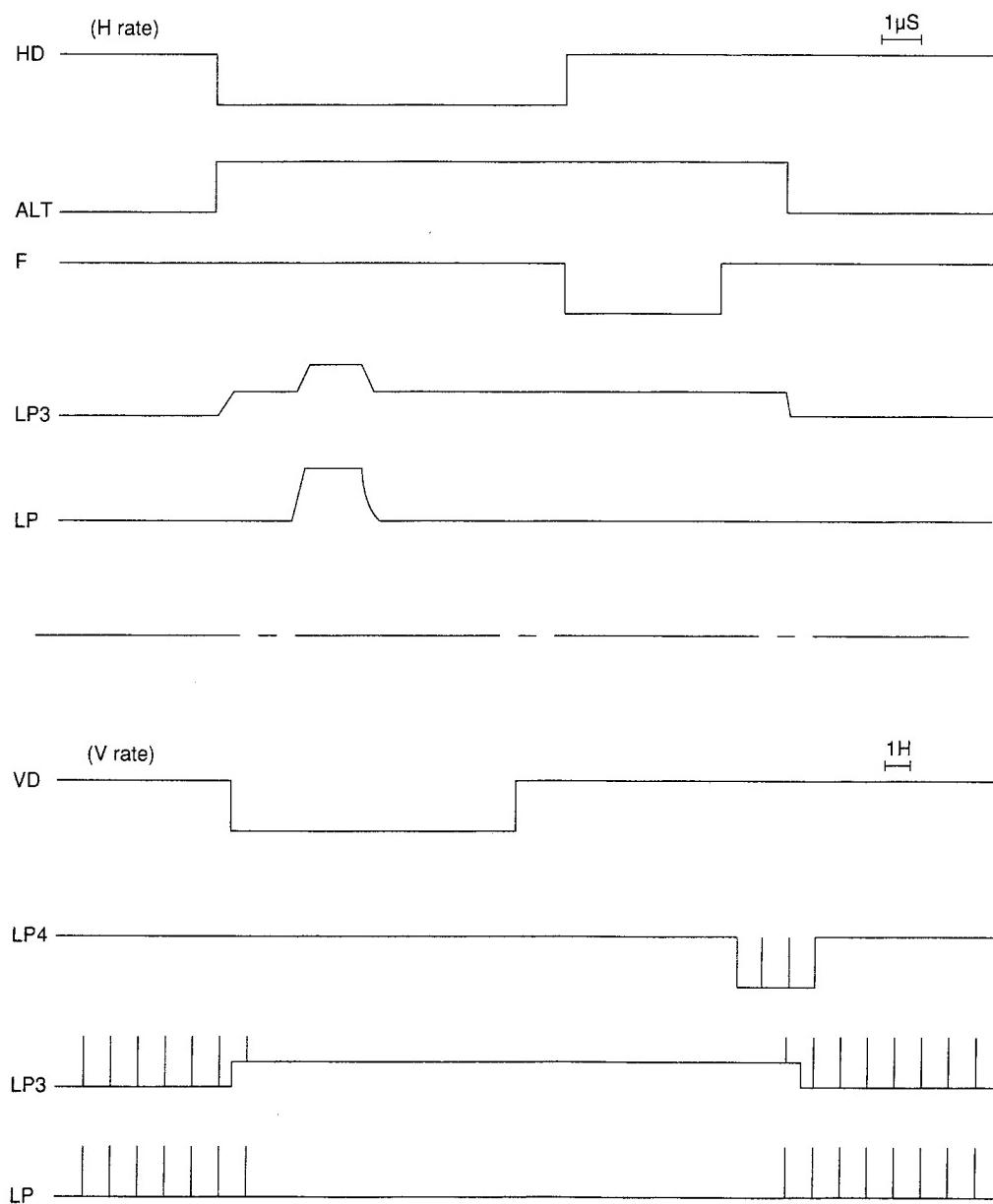


Fig. 1 CLP5 (NTSC)

4-7. MB-380 BOARD

The MB-380 board primarily consists of a DC/DC converter that supplies the DC power required for each block and a circuit that generates seven pulses from a pulse on the SG board and sends them to the PR-158/158P board. Fig. 1 shows the timing chart for each output pulse. C9, R3, R4, R5, and R6 are a noise elimination filter when operating the lens using RM-930.

Timing Chart of DXC-930 (NTSC)



4-8. CN-579/580 BOARD

The CN-579/580 board consists of an input and output connectors, control voltage circuit, and video signal driver circuit. The CN-579 board differs from the CN-580 board in that it has the number of pins required for connection with CCU-M3, CCU-M7, and RM-930.

The VBS signal of a 9-pin DSUB connector (CN5) and the Y/C signal output are selected using an analog switch. A sync signal is selected using switch SW7.

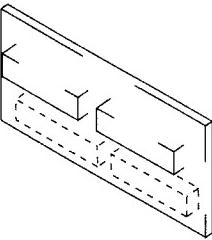
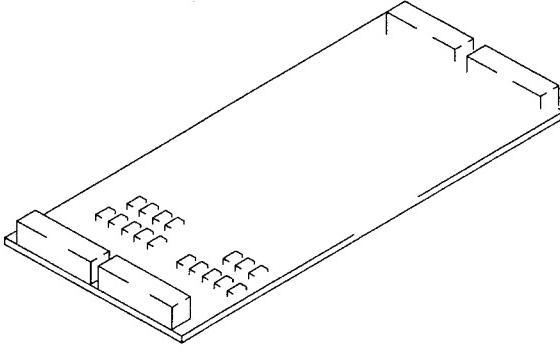
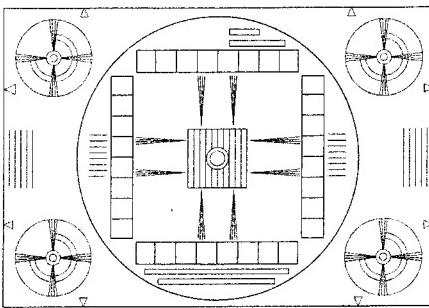
The SENSE (+) and (-) pins on the CN-579 board output a reference DC voltage (approximately 2.5 when a proper voltage is supplied to the camera) to fix the supply voltage sent from CCU to DXC-930 when they are connected to the CCU.



SECTION 5 ALIGNMENT

5-1. PREPARATION

5-1-1. Fixtures and Equipments Required

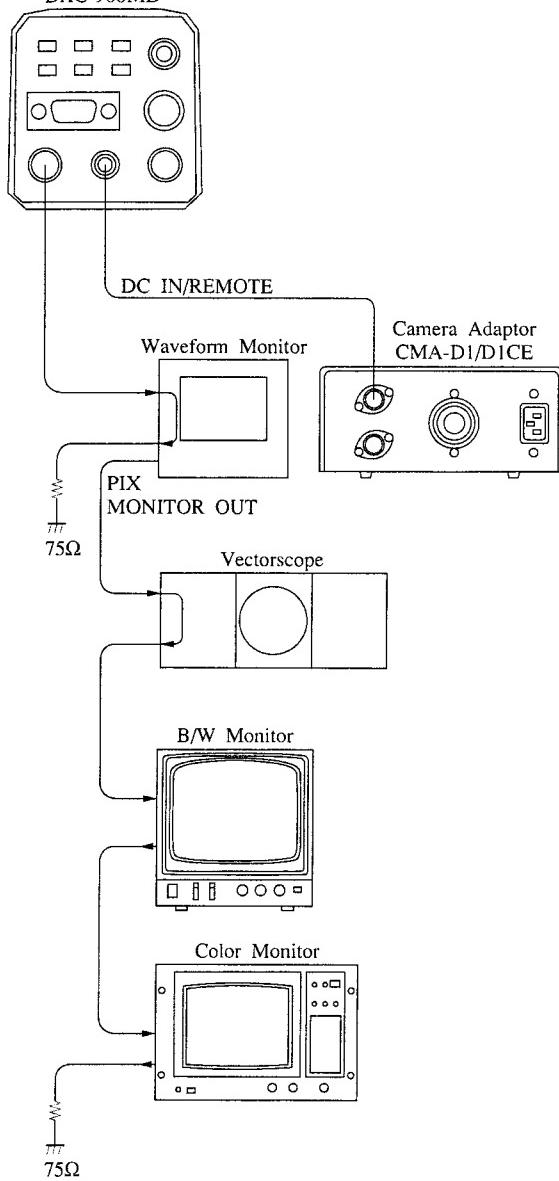
J-6029-140-B	Pattern Box PTB-500	J-6097-110-A	Extension board EX-328
• Light source for test charts AC90~240V			
A-6026-130-B	Grayscale Chart	J-6097-120-A	Extension board EX-329
• For video level adjustment, etc.			
J-6026-100-A	Resolution Chart		

Commercial equipment and fixture

- Dual Trace Oscilloscope
- Vectorscope
- Waveform Monitor
- Frequency Counter
- Digital Voltmeter
- B/W Monitor
- Color Monitor
- Bayonet type lens with manual iris function
 - 1/2-inch lens
 - 2/3-inch lens + LO-32BMT lens mount adaptor

5-1-2. Connection

Video Camera
DXC-930/930P
DXC-960MD



5-1-3. How to adjust an electronic control

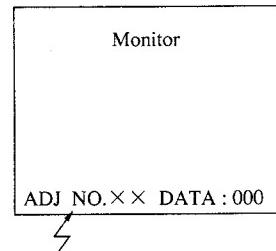
The DXC-930/DXC-930P/DXC-960MD/XC-009/XC-009P has the electronic controls in addition to the controls that are mounted on the each board for adjustment.

How to adjust an electronic control is shown below.

1. Adjustment mode for an electronic control

Set the SW1/AT-69 board to ADJ position, and the adjustment mode for an electronic control is put. The address and the data of an electronic control are displayed on the monitor screen.

This message means that the address is "ADJ NO. XX" and the data is "000".

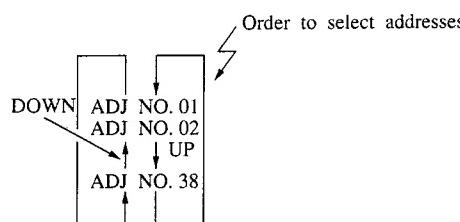
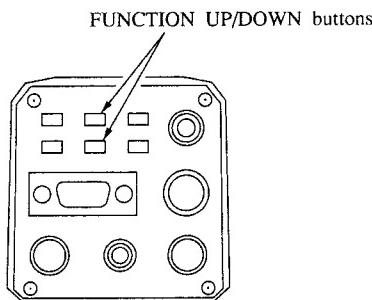


It indicates that data
at address XX is 000.

2. Address Selection

The address that is displayed on the monitor will go up (or down) by pressing the FUNCTION UP (or DOWN) button on the rear panel. When pressing the FUNCTION UP (or DOWN) button continuously, displayed address will change in succession.

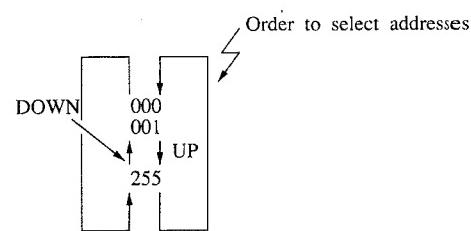
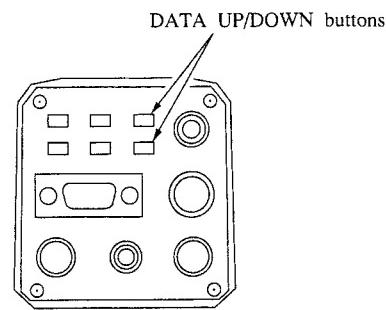
Order of address selection



3. Data Selection (Electronic control adjustment)

The data (adjustment value) that is displayed on the monitor will go up (or down) by pressing the DATA UP (or DOWN) button on the rear panel. By this operation, the adjustment value will change in the same manner that when an ordinary level control is turned.

Order of data selection



5-1-4. Switch Setting Before Adjustment

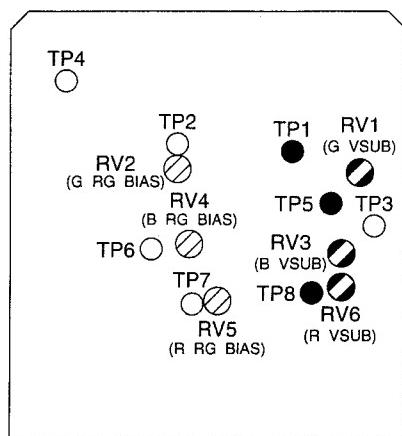
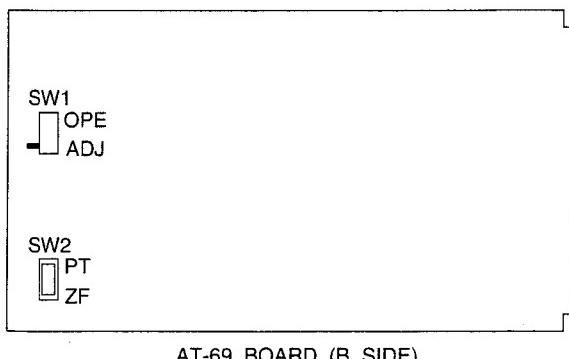
Menu Screen:

GAIN: STEP
STEP 0 dB
C. STEP: 3200K
WHT. BAL: MANU
R. GAIN +00
B. GAIN +00
CCD IRIS: OFF
SHUTTER: OFF

AT-69 board:

SW1 (ADJ/OPE): ADJ

Note: After the adjustment, set the SW1 (ADJ/OPE) /AT-69 board to OPE position.



5-2. ADJUSTMENT

5-2-1. G/R/B V Substrate Voltage Adjustment

Note: Before replacing any controls on TG-102/102P board or TG-102/102P board itself, be sure to measure voltage at following test points in advance.

After replacement is completed, adjust voltage at each test point for the measured value.

If the voltage can not be adjusted to the measured value, adjust for following specifications.

Equipment: Digital voltmeter

Preparation:

- Disconnect the PR-158/158P, IF-354/354P and AT-69 board from the camera unit.

Adjustment Procedure:

- Perform adjustment in order of G, R and B channels as shown below.

Note: Before replacing any controls on TG-102/102P board or TG-102/102P board itself, be sure to measure voltage at following test points in advance.

After replacement is completed, adjust voltage at each test point for the measured value.

If the voltage can not be adjusted to the measured value, adjust for following specifications.

TG-102/102P board

	Test point (GND: TP3)	Adjusting point	Specification
G-ch	TP1	RV1	
R-ch	TP8	RV6	12.0±0.1 V dc
B-ch	TP5	RV3	

Note: After the adjustment, return the PR-158/158P, IF-354/354P and AT-69 board to their normal position.

5-2-2. G/R/B PGL Voltage Adjustment

Note: Before replacing any controls on TG-102/102P board or TG-102/102P board itself, be sure to measure voltage at following test points in advance.
After replacement is completed, adjust voltage at each test point for the measured value.
If the voltage can not be adjusted to the measured value, adjust for following specifications.

Equipment: Digital voltmeter

Preparation:

- Disconnect the PR-158/158P, IF-354/354P and AT-69 board from the camera unit.

Adjustment Procedure:

- Perform adjustment in order of G, R and B channels as shown below.

Note: Before replacing any controls on TG-102/102P board or TG-102/102P board itself, be sure to measure voltage at following test points in advance.
After replacement is completed, adjust voltage at each test point for the measured value.
If the voltage can not be adjusted to the measured value, adjust for following specifications.

TG-102/102P board

	Test point (GND: TP4)	Adjusting point	Specification
G-ch	TP2	● RV2	
R-ch	TP7	● RV5	2.0±0.1 V dc
B-ch	TP6	● RV4	

Note: After the adjustment, return the PR-158/158P, IF-354/354P and AT-69 board to their normal position.

5-2-3. Subcarrier Frequency Adjustment

Equipment: Frequency counter

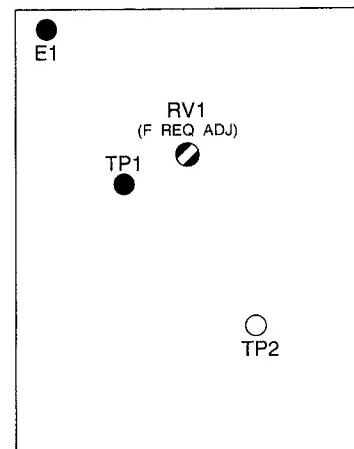
To be extended: SG-194/194P board

Test point: TP1 (GND: E1) /SG-194 (194P) board

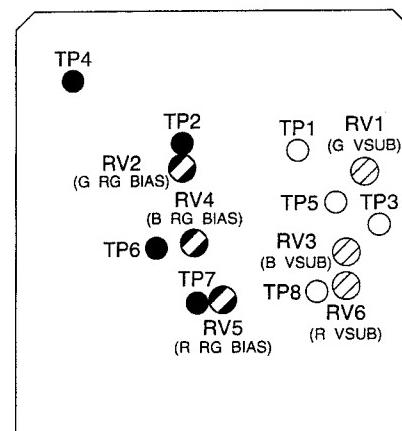
Adj. point: ● RV1/SG-194 (194P) board

Spec.: 3,579,545 ± 10 Hz (For NTSC)

4,433,619 ± 10 Hz (For PAL)



SG-194 /194P BOARD (B SIDE)



TG-102/102P BOARD (A SIDE)

5-2-4. Color Bars Adjustment

Equipment: Oscilloscope, Waveform monitor

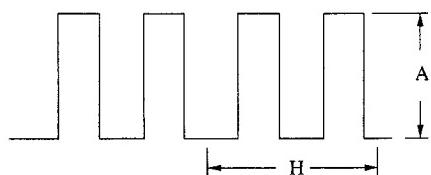
To be extended: PR-158/158P board

Preparation:

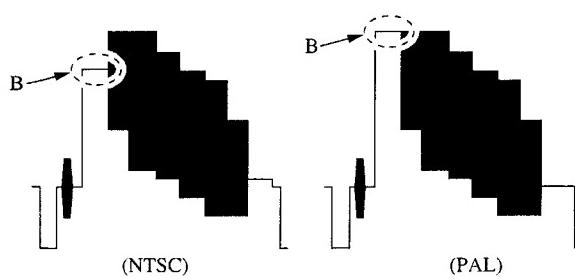
- DISPLAY/BARS button → "BARS"

Adjustment Procedure:

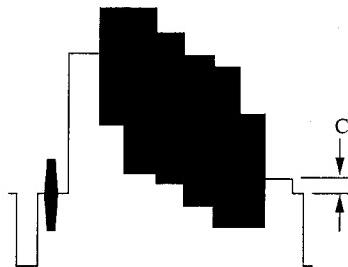
1. Adjust ~~●~~RV14/PR board so that the video level "A" at TP9 (GND: E1) on the PR board is 750 ± 10 mV p-p (PAL; 1.0 ± 0.01 V p-p).



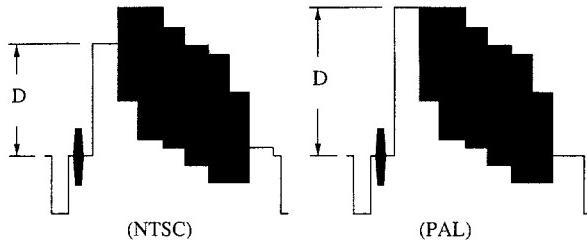
2. Adjust \bullet RV15 and \bullet RV13/PR board so that the carrier leakage "B" at the gray level portion (PAL; white level portion) of VIDEO OUT waveform is minimum.



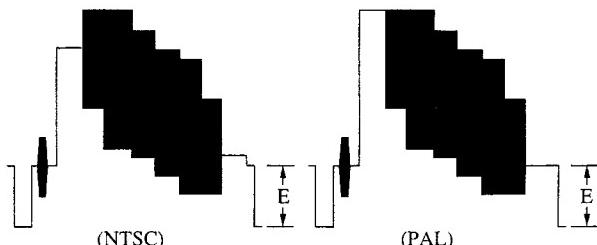
3. (UC model only) Adjust "ADJ NO. 7" of the electronic control so that the set up level "C" at VIDEO OUT is 7.5 ± 1 IRE.



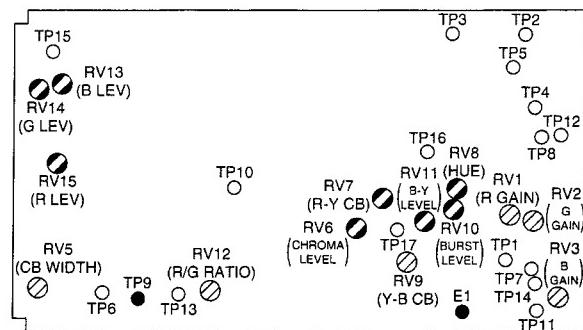
4. Adjust "ADJ NO. 5" of the electronic control so that the gray level "D" (PAL; white level "D") at VIDEO OUT is 75 ± 2 IRE (PAL; 700 ± 10 mV).



5. Adjust "ADJ NO. 6" of the electronic control so that the SYNC level "E" at VIDEO OUT is 40 ± 2 IRE (300 ± 10 mV).



6. Repeat steps 2 to 5 several times until the specification are met.



PR-158/158P BOARD (B SIDE)

5-2-5. Carrier Balance Adjustment

Equipment: Vectorscope (MAX GAIN)

To be extended: PR-158/158P board

Preparation:

- DISPLAY/BARS button → "BARS"

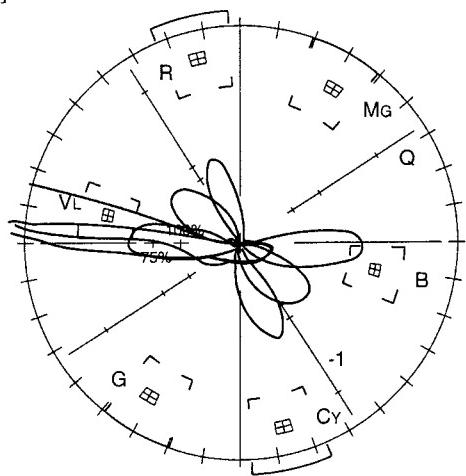
Test point: VIDEO OUT connector /rear panel

Adj. point: **●** RV7, **●** RV9/PR-158 (158P) board

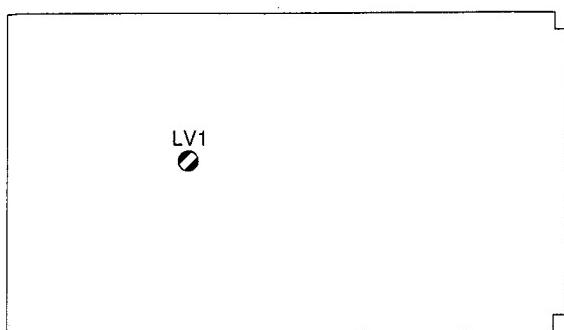
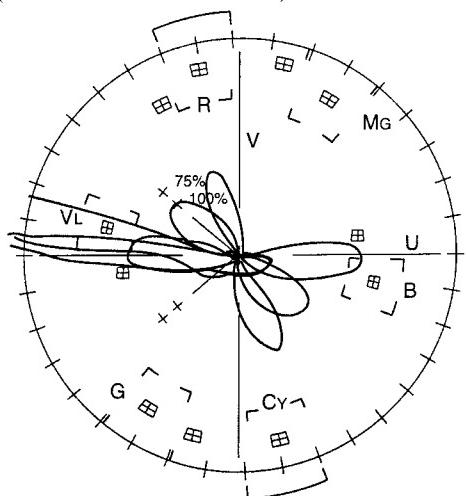
Specification:

Adjust RV7 and RV9/PR board so that the beam spot of the white level is located in the center of the vectorscope screen.

[NTSC]



[PAL] (VECTOR NTSC button: ON)



PR-158/158P BOARD (A SIDE)

DXC-930/930P
DXC-960MD

5-2-6. Color Vector Adjustment

Equipment: Vectorscope

To be extended: PR-158/158P board

Preparation:

1. GAIN switch/vectorscope → 75% CAL

2. Adjust the PHASE control so that the beam spot of the burst is set to the 75% axis.

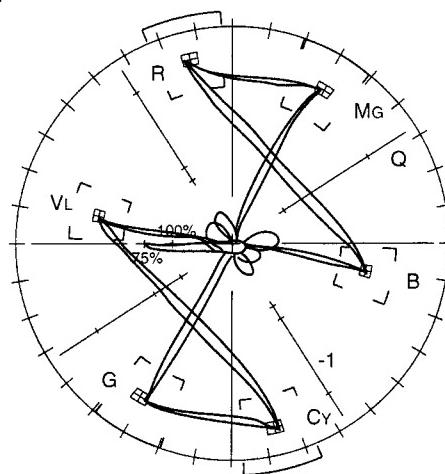
3. DISPLAY/BARS button → BARS

Test point: VIDEO OUT connector/rear panel

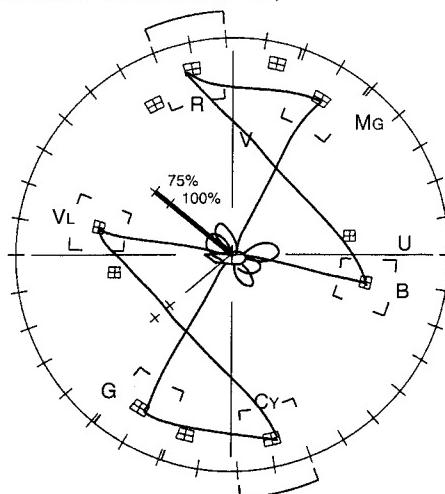
Adjustment Procedure:

1. Adjust **●** RV10/PR board so that the burst spot is located at 75% scale mark on the vectorscope screen.
2. Adjust **●** RV6, **●** RV8, **●** RV11 and **●** LV1/PR board so that all the chroma spots are located on the specified scale point on the vectorscope screen.
3. Repeat steps 1 and 2 alternately until the specification are met.

[NTSC]



[PAL] (VECTOR NTSC button: ON)



5-2-7. Color-Bar Width Adjustment

Equipment: Oscilloscope

To be extended: PR-158/158P board

Preparation:

- #### **Preparation**

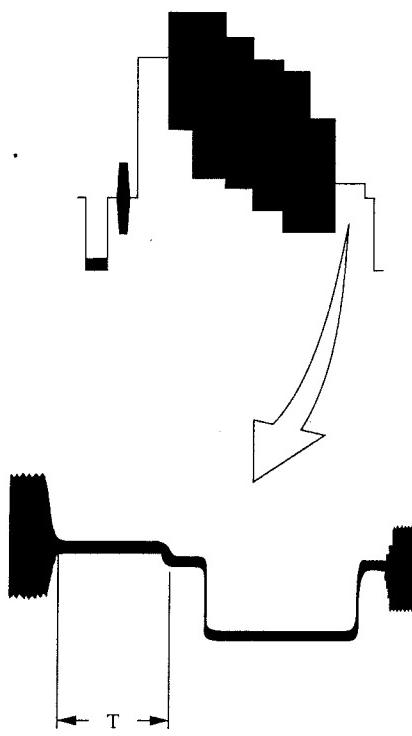
Test point: VIDEO OUT connector/rear panel

Adj point: QRV5/PB-158 (158P) board

Adj. point: $\text{TVS}/\text{PR-158}$ (158P) 60

Specification: $T = 4.0 \pm 0.2 \mu\text{s}$ (NTSC)
 $T = 5.3 \pm 0.2 \mu\text{s}$ (PAL)

$T = 5.3 \pm 0.2 \mu\text{s}$ (PAL)



5-2-8. Video Level Adjustment

Subject: Overall white, Grayscale chart

Equipment:

To be extended: PR-158/158P board

Adjustment Procedure:

- Adjustment Procedure:**

 1. Subject: Overall white
 Lens iris → Open
 2. C. TEMP. (Menu on the monitor screen) → 5600 K
 FLD/FRM (Menu on the monitor screen) → FLD
 3. Adjust Electronic control as shown below.

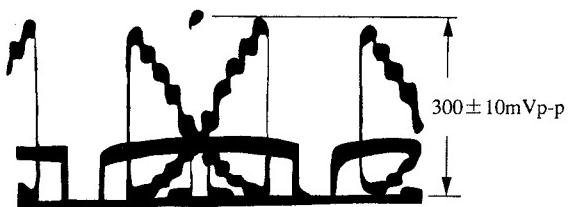
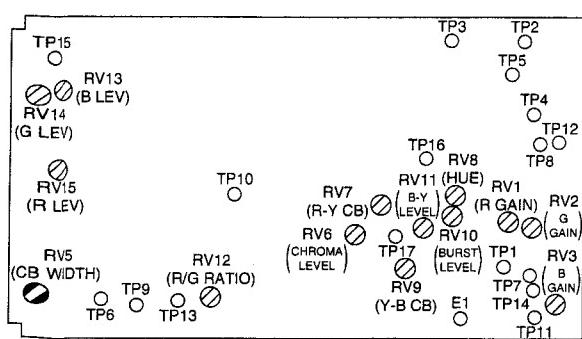
Test point /PR-158 board	Adjusting point/ electronic control	Specification
TP4 (GND: E1)	"ADJ No. 34"	1.0 ± 0.01 V p-p

4. C. TEMP. (Menu on the monitor screen) → 3200 K
 5. Adjust Electronic control as shown below.

Test point /PR-158 board	Adjusting point/ electronic control	Specification
TP12 (GND: E1)	"ADJ No. 35"	1.0 ± 0.01 V p-p



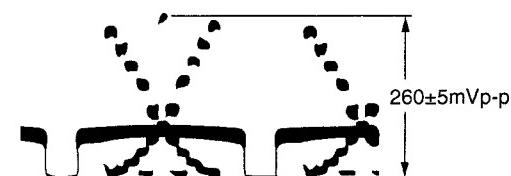
6. Subject: Grayscale chart
 7. Adjust the lens iris so that the video level at TP7 (GND: E1) on the PR board is 300 ± 10 mV p-p.



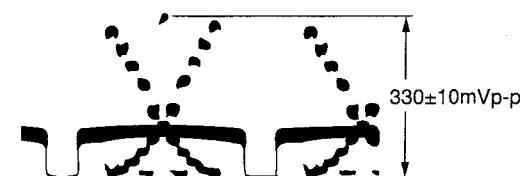
- 8 Set the data of "ADJ No. 10" (Electronic control) to 50.
 9. Set the data of "ADJ No. 12" (Electronic control) to 100.

10. Perform adjustment in order of G, R and B channels as shown below.

	Test point /PR-158 board	Adjusting point /PR-158 board	Specification
G	TP2 (GND: E1)	◎RV2	
R	TP3 (GND: E1)	◎RV1	260±5m V p-p
B	TP5 (GND: E1)	◎RV3	

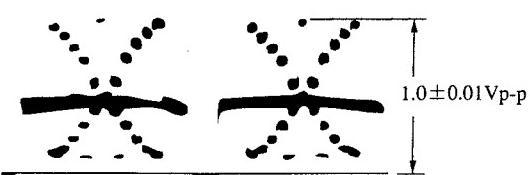


11. Adjust the "ADJ NO. 12" of the electronic control so that the video level at TP2 (GND: E1) on the PR board is 330 ± 10 mVp-p.



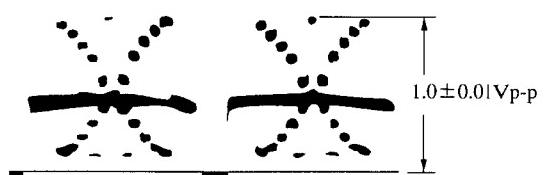
12. Adjust electronic control "ADJ No. 10" so that the value is raised, and stop it just before the video level goes up.

13. Adjust the "ADJ NO. 13" of the electronic control so that the video level at TP9 (GND: E1) on the PR board is 1.0 ± 0.01 V_{p-p}.

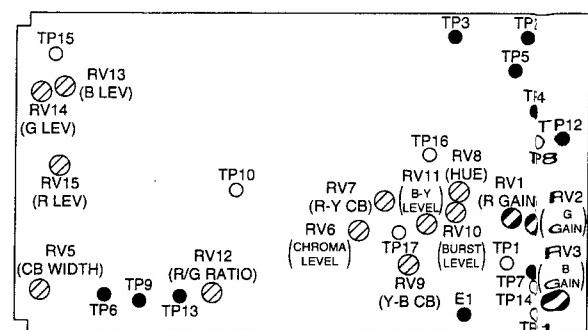
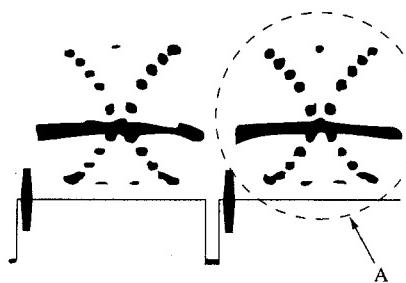


14. Perform adjustment in order of R and B channels as shown below.

	Test point /PR-158 board	Adjusting point/ electronic control	Specification
R	TP6 (GND: E1)	"ADJ No. 14"	$1.0 \pm 0.01 \text{ V p-p}$
B	TP13 (GND: E1)	"ADJ No. 15"	



15. Repeat steps 13 and 14 alternately until a portion A of the carrier leakage at VIDEO OUT is minimum on the waveform monitor screen.



PR-158/158P BOARD (B SIDE)

5-2-9. Black Set Adjustment

Equipment: Waveform monitor, Vectorscope

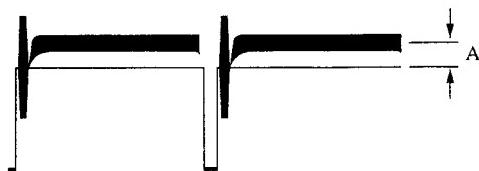
To be extended: PR-158/158P board

Preparation:

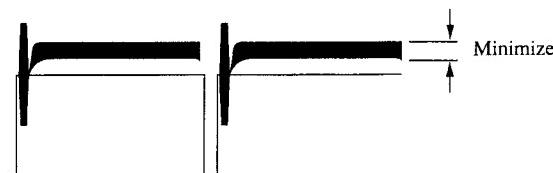
- Lens iris → Close

Adjustment Procedure:

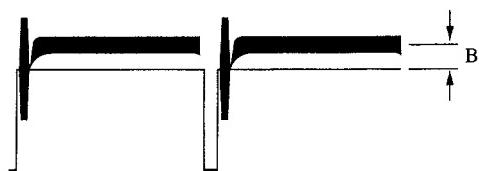
1. Adjust "ADJ NO. 20" of the electronic control so that the video level "A" at VIDEO OUT is 10.5 ± 2 IRE (PAL; 3 ± 1 %).



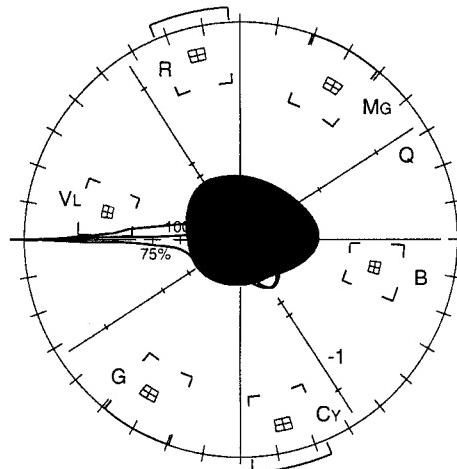
2. Adjust "ADJ NO. 19" and "ADJ NO. 21" of the electronic control alternately so that the carrier leakage at VIDEO OUT is minimum.



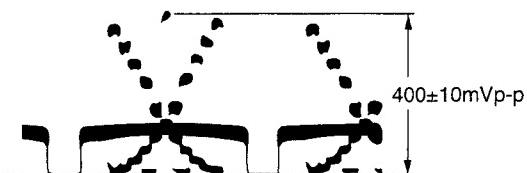
3. Repeat steps 1 and 2 alternately until the specifications are met.
4. GAIN switch → 18 dB
5. Adjust "ADJ NO. 2" of the electronic control so that the video level "B" at VIDEO OUT is 10.5 ± 2 IRE (PAL; 3 ± 1 %).



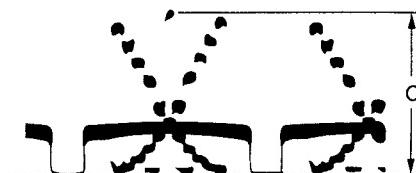
6. Adjust "ADJ NO. 1" and "ADJ NO. 3" of the electronic control alternately so that the beam spot of black level is located in center on vectorscope screen.



7. Repeat steps 5 and 6 alternately until the specifications are met.
8. Adjust the lens iris so that the video level at TP2 (GND: E1) /PR board is 400 ± 10 mVp-p.



9. Adjust "ADJ NO. 9" of the electronic control so that the video level "C" at TP2 (GND: E1) /PR board is set just before the level goes down.



Note: After the adjustment, set the switch as shown below.
GAIN switch → 0dB

5-2-10. GAIN AGC Adjustment

Subject: Grayscale chart

Equipment: Oscilloscope

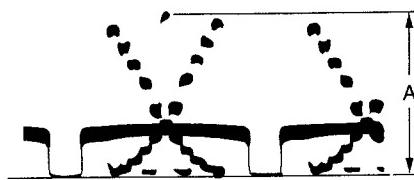
To be extended: PR-158/158P board

Preparation:

- Lens iris → F8
- GAIN (Menu on the monitor screen) → AGC

Adjustment Procedure:

- Adjust "ADJ NO. 11" of the electronic control so that the video level "A" at TP2 (GND: E1)/PR board is 300 ± 5 mV p-p.



Note: After the adjustment, set the switch as follows.
GAIN (Menu on the monitor screen) → STEP

5-2-11. Cross point Adjustment

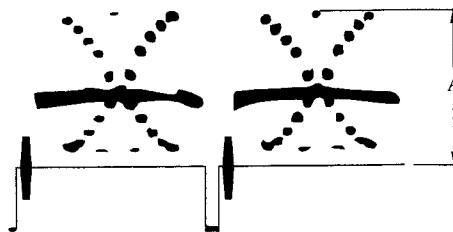
Subject: Grayscale chart

Equipment: Waveform monitor

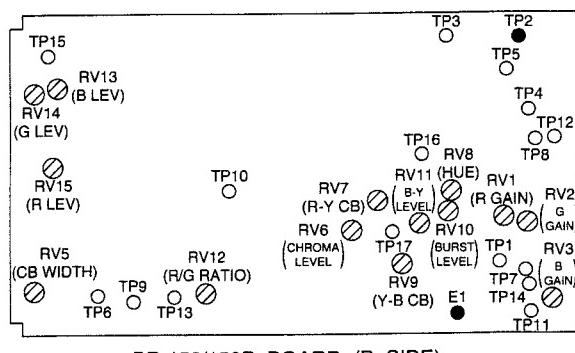
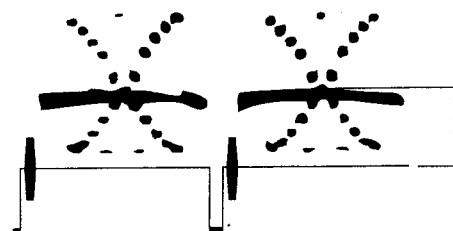
To be extended: PR-158/158P board

Adjustment Procedure:

1. Adjust the lens iris so that the video level "A" at VIDEO OUT is 100 ± 2 IRE (PAL; 700 ± 10 mV).



2. Adjust "ADJ NO. 22" of the electronic control so that the cross point level "B" at VIDEO OUT is 56 ± 1 IRE (PAL; 360 ± 5 mV).



5-2-12. White Level Adjustment

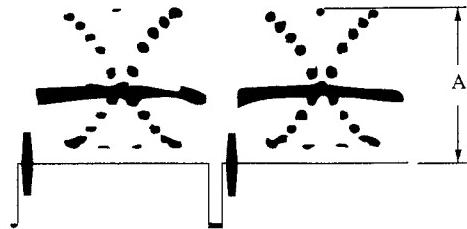
Subject: Grayscale chart

Equipment: Waveform monitor

To be extended: PR-158/158P board

Adjustment Procedure:

1. Adjust the lens iris so that the video level "A" at VIDEO OUT is 100 ± 2 IRE (PAL; 700 ± 10 mV).



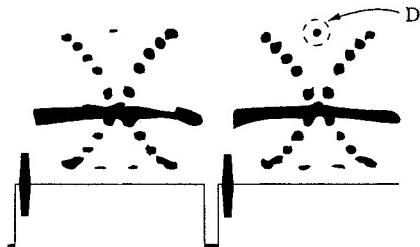
2. Adjust "ADJ NO. 23" of the electronic control just before where the video level "B" at TP9 (GND: E1) /PR board decreases less than 100 IRE (PAL; 700 mV).



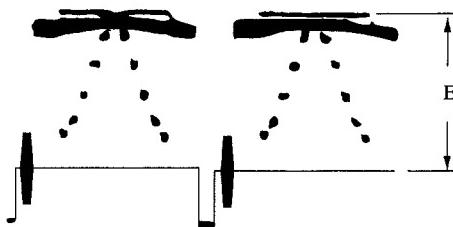
3. Adjust "ADJ NO. 17" of the electronic control just before where the video level "C" at TP9 (GND: E1) /PR board decreases than 100 IRE (PAL; 700 mV).



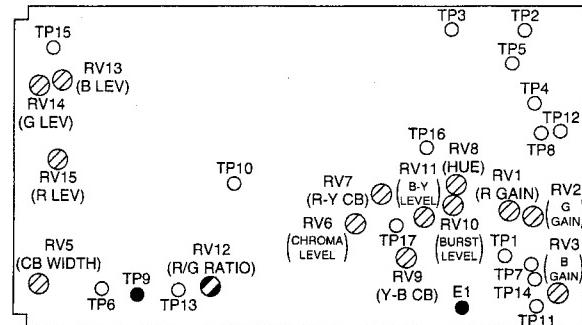
4. Lens iris → F4
 5. Adjust "ADJ NO. 16" and "ADJ NO. 18" of the electronic control so that the carrier leakage "D" of white level portion at VIDEO OUT is minimum.



6. Lens iris → F2.8 or F2
 7. Adjust "ADJ NO. 8" of the electronic control so that the white clip level "E" at VIDEO OUT is 115 ± 2 IRE (PAL; 805 ± 10 mV).

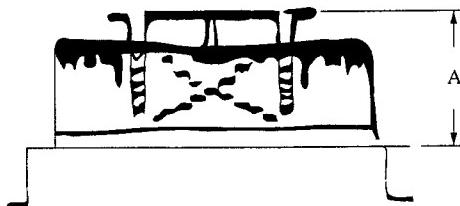


8. Set the data of "ADJ No. 24" (Electronic control) to 255.

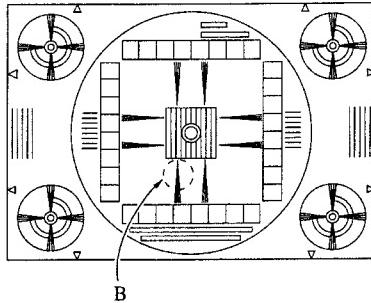


5-2-13. Aperture Detail Adjustment

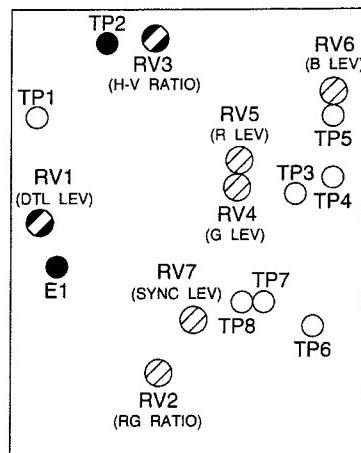
- Subject:** Resolution chart, Grayscale chart
Equipment: B/W monitor screen, Waveform monitor, Oscilloscope
- Adjustment Procedure:**
1. Subject: Resolution chart
 2. To be extended: PR-158/158P board
 3. Adjust the lens iris so that the video level "A" at VIDEO OUT is 100 ± 2 IRE (PAL; 700 ± 10 mV).



4. Set the data of "ADJ No. 27" (Electronic control) to 60.
 Set the data of "ADJ No. 25" (Electronic control) to 100.
 Set the data of "ADJ No. 26" (Electronic control) to 151.
5. Adjust \bullet RV12/PR board so that the highest resolution at portion "B" is obtained, observing the B/W monitor.

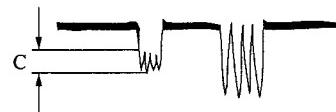
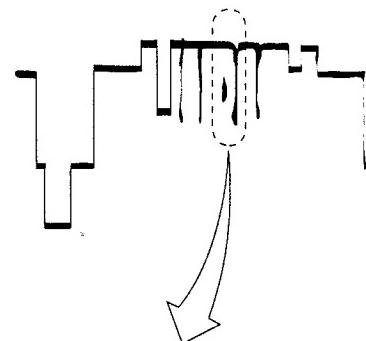


6. Select the 730 to 740 TV lines of the resolution chart with the "LINE SELECTOR" of the waveform monitor.



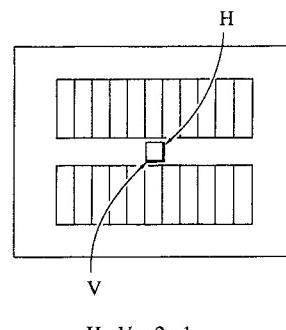
IF-354/354P BOARD (A SIDE)

7. Adjust "ADJ NO. 25" of the electronic control so that the modulation degree "C" is from 8 to 10 IRE (PAL; 56 to 70 mV).



8. Subject: Grayscale chart
9. To be extended: IF-354/354P board
10. Adjust \bullet RV1/IF-354 (354P) board so that only V detail signal having appears at TP2 (GND: E1) /IF board.
11. Observing the white portion on the grayscale chart and adjust \bullet RV3/IF board so that the overlapping detail ratio of H to V on the grayscale is 2 to 1 on the monitor screen.

(Monitor)

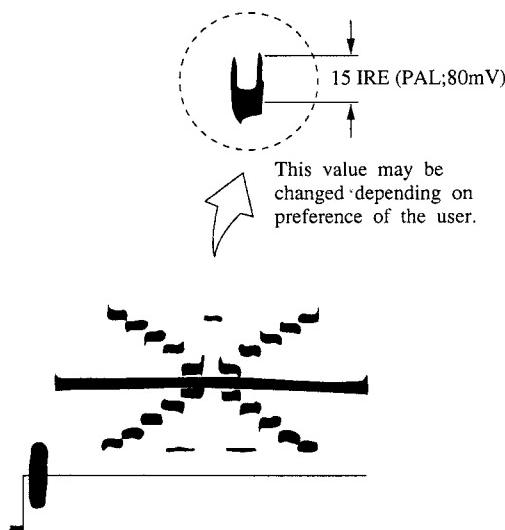


H : V = 2 : 1

12. Set the data of "ADJ No. 27" (Electronic control) to 120.
 Set the data of "ADJ No. 28" (Electronic control) to 120.

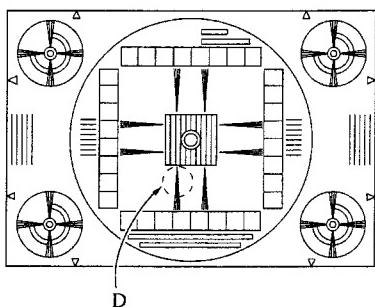
13. Adjust "ADJ NO. 28" of the electronic control so that the spikes (detail level during H period) at both ends of white level are 15 IRE (PAL; 80 mV).

This level can be changed according to the users' requirements.



14. Subject: Resolution chart

15. Adjust ~~RV2~~/IF board so that the highest resolution of portion "D" portion is obtained, observing the B/W monitor.



5-2-14. IRIS Adjustment

Subject: Grayscale chart

Equipment: Waveform monitor

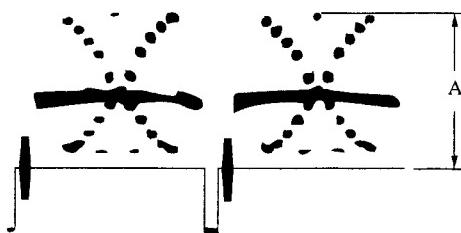
To be extended: IF-354/354P board

Preparation:

- IRIS AUTO/MANU → "AUTO"

Adjustment Procedure:

1. Adjust "ADJ NO. 30" of the electronic control so that the video level "A" at VIDEO OUT is 100 ± 2 IRE (PAL; 700 ± 10 mV).

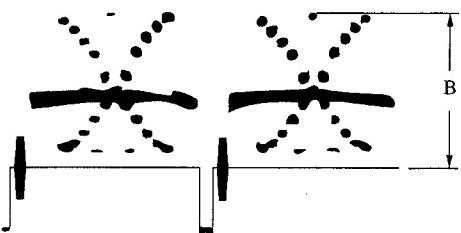


2. IRIS AUTO/MANU → MANU

Lens iris → F2.8

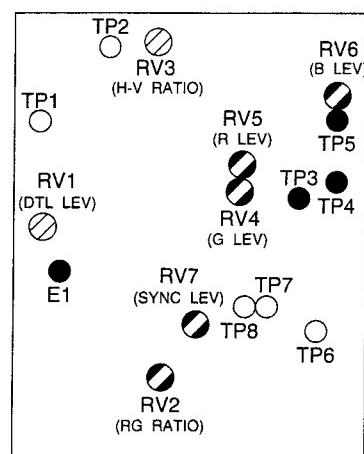
CCD IRIS (Menu on the monitor screen) → ON

3. Adjust "ADJ NO. 32" of the electronic control so that the video level "B" at VIDEO OUT is 105 ± 2 IRE (PAL; 735 ± 10 mV).



4. CCD IRIS (Menu on the monitor screen) → OFF

5. Set the data of "ADJ No. 37" (Electronic control) to 100.
Set the data of "ADJ No. 38" (Electronic control) to 003.



IF-354/354P BOARD (A SIDE)

5-2-15. G OUT Level Adjustment

Equipment: Oscilloscope

To be extended: IF-354/354P board

Preparation:

- Confirm that the "G. SYNC" (Menu on the monitor screen) is set to "ON".
- DISPLAY/BARS button → "BARS"
- SW7 (SYNC/SG1) /CN-579 (580) board → "SYNC"

Test point: TP4 (GND: E1) /IF-354 (354P) board

Specification: (75-ohm termination)

A = 714 ± 10 mV (For NTSC)

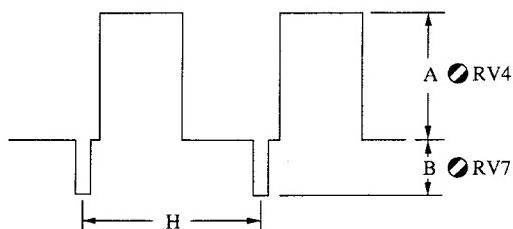
A = 700 ± 10 mV (For PAL)

● RV4/IF-354 (354P) board

B = 286 ± 5 mV (For NTSC)

B = 300 ± 5 mV (For PAL)

● RV7/IF-354 (354P) board



5-2-16. R OUT Level Adjustment

Equipment: Oscilloscope

To be extended: IF-354/354P board

Preparation:

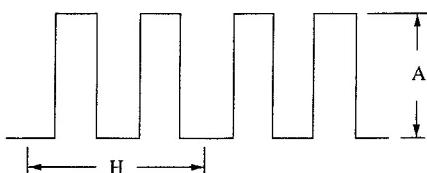
- DISPLAY/BARS button → "BARS"
- TP3 (GND: E1)/IF-354 (354P) board

Adj. point: ● RV5/IF-354 (354P) board

Specification: (75-ohm termination)

NTSC; A = 714 ± 10 mV

PAL; A = 700 ± 10 mV



5-2-17. B OUT Level Adjustment

Equipment: Oscilloscope

To be extended: IF-354/354P board

Preparation:

- DISPLAY/BARS button → "BARS"

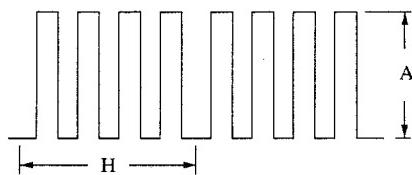
Test point: TP5 (GND: E1)/IF-354 (354P) board

Adj. point: ● RV6/IF-354 (354P) board

Specification: (75-ohm termination)

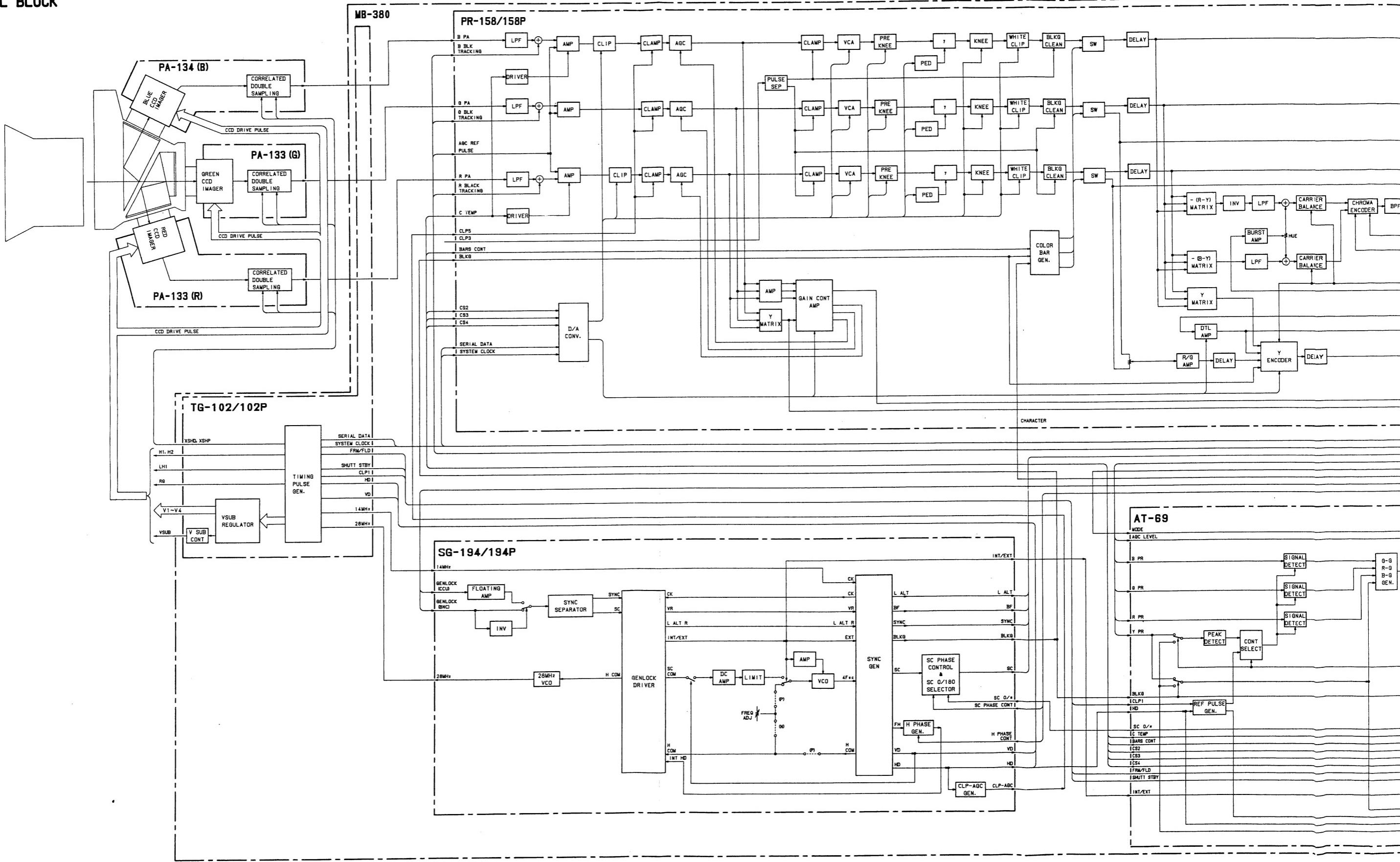
NTSC; A = 714 ± 10 mV

PAL; A = 700 ± 10 mV

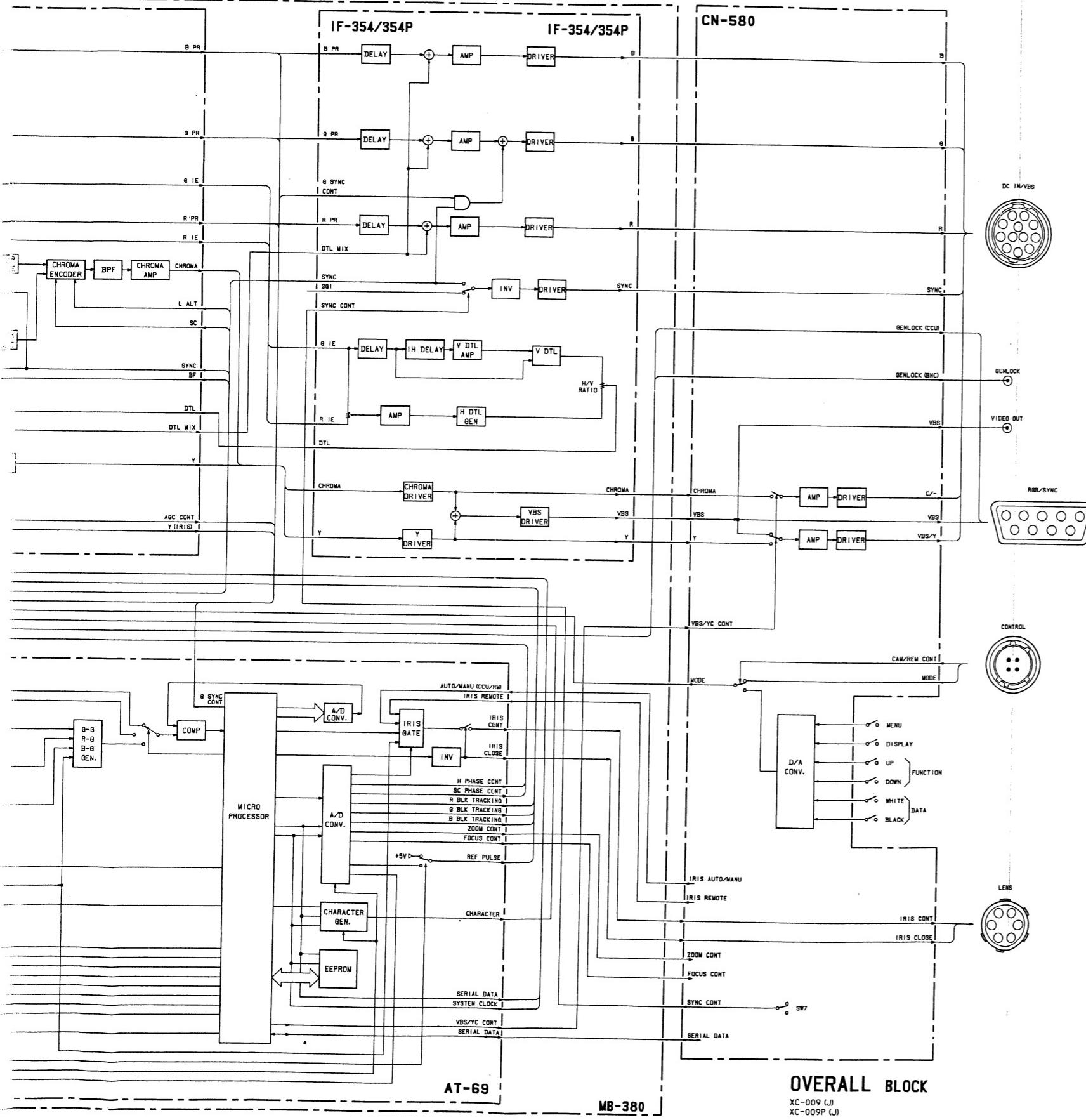


OVERALL OVERALL

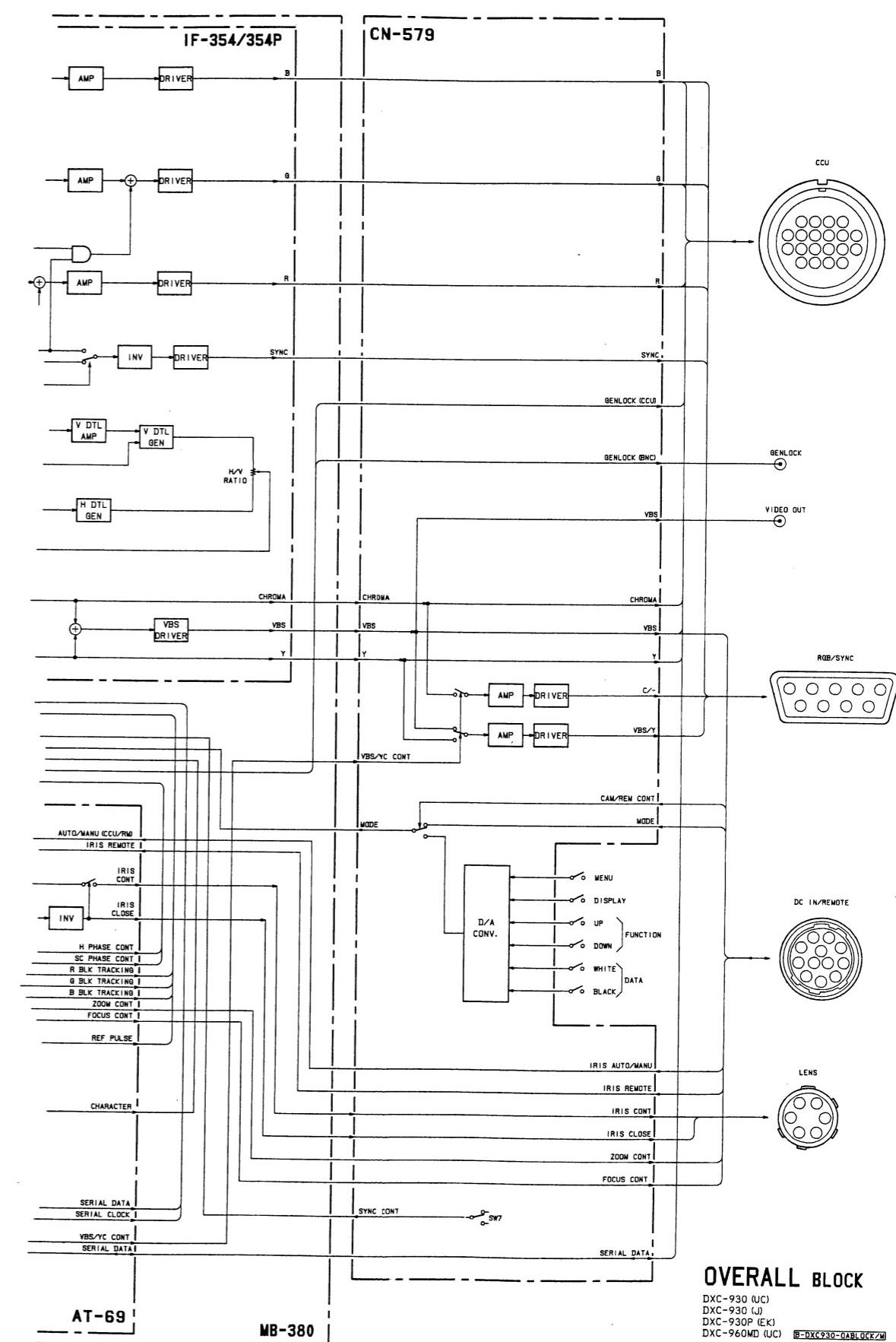
**SECTION A
BLOCK DIAGRAMS**

OVERALL BLOCK

OVERALL OVERALL



A-3

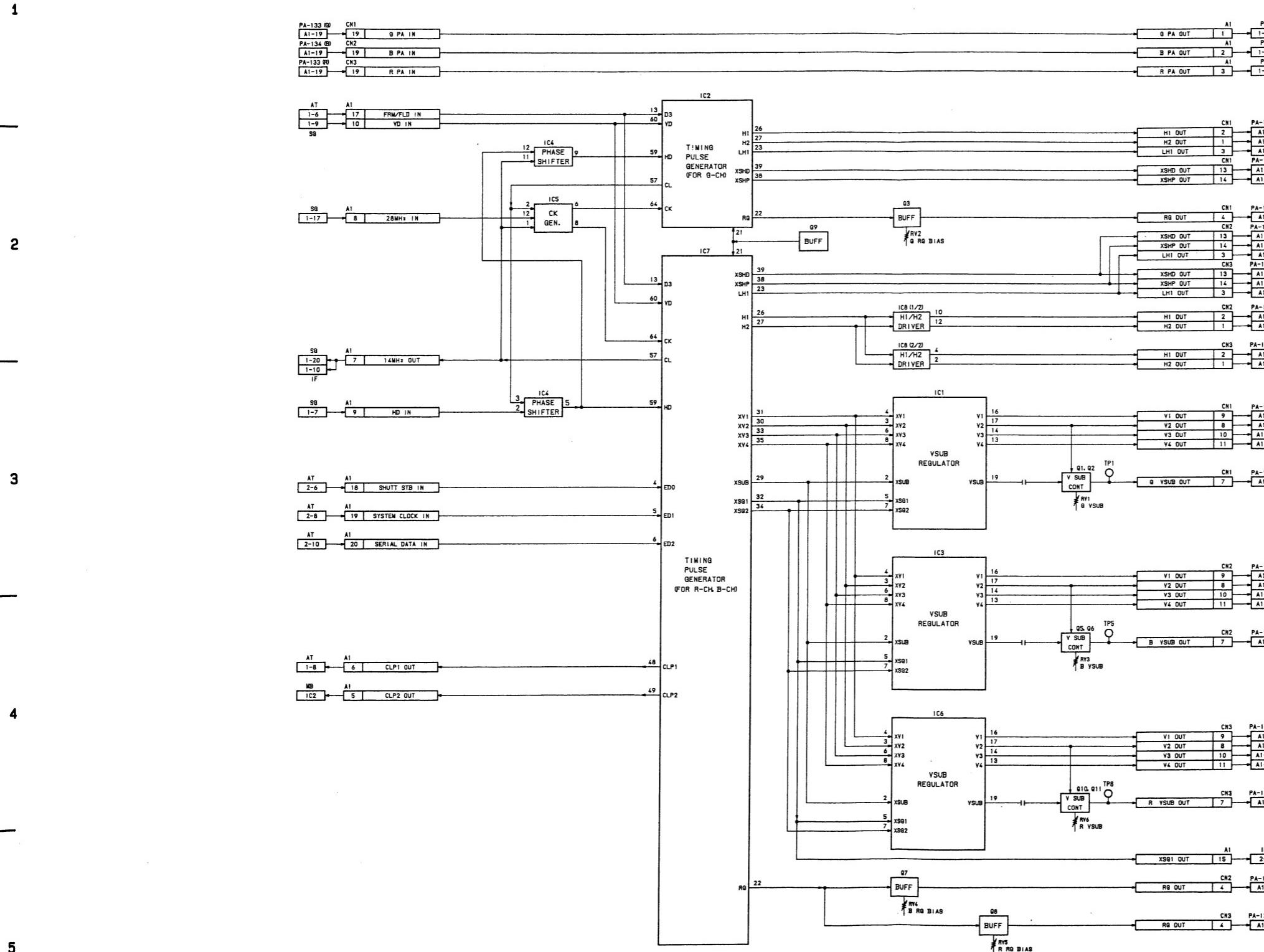


A-4

P

TG-102/102P **TG-102/102P**

TG-102/102P BLOCK



TG-102/102P BLOCK

DXC-930 (UC)
 DXC-930 (U)
 DXC-930P (EK)
 DXC-960MD (UC)
 XC-009 (U)
 XC-009P (U)
 #DXC930-TG102BLOCK/W

TG-102/102P TG-102/102P

I

A-7

J

K

L

M

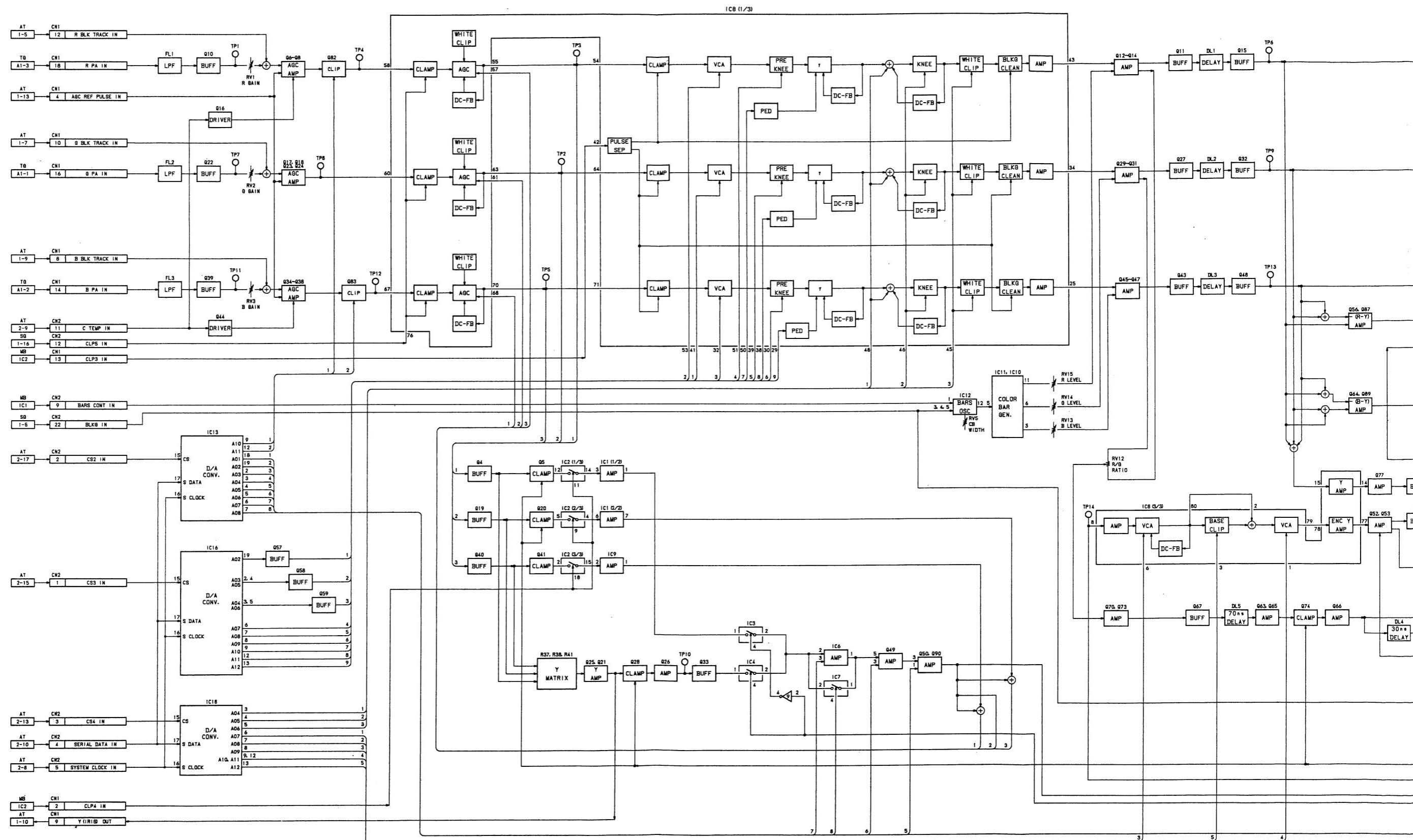
N

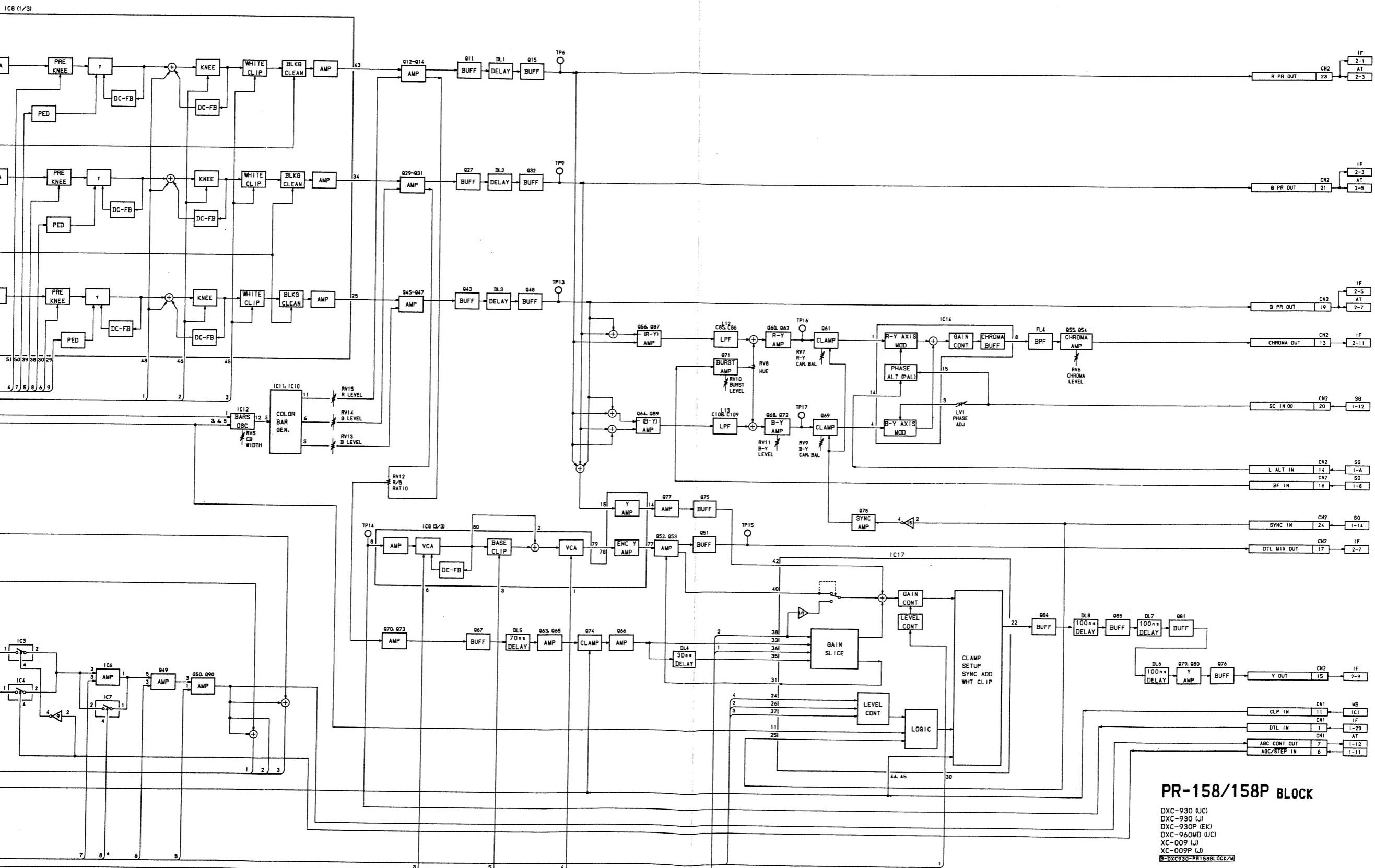
A-8

O

DXC-930/930P
DXC-960MD
XC-009/009P
P

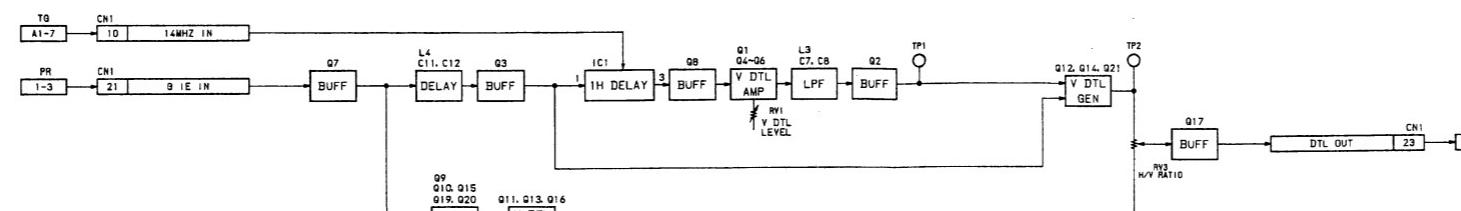
PR-158/158P BLOCK



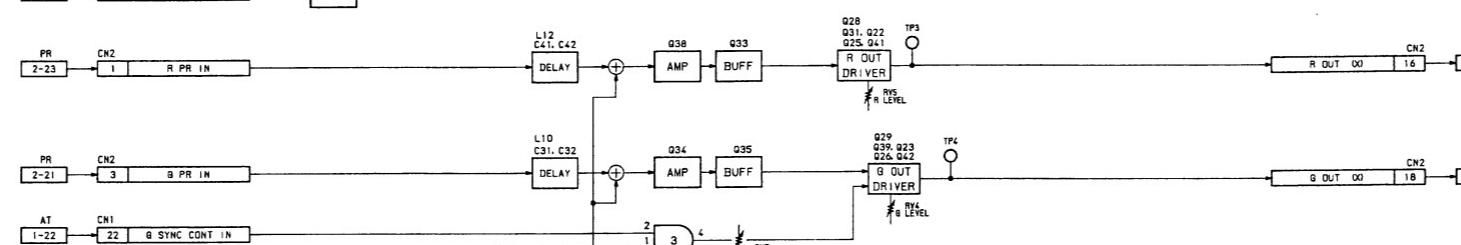


IF-354/354P BLOCK

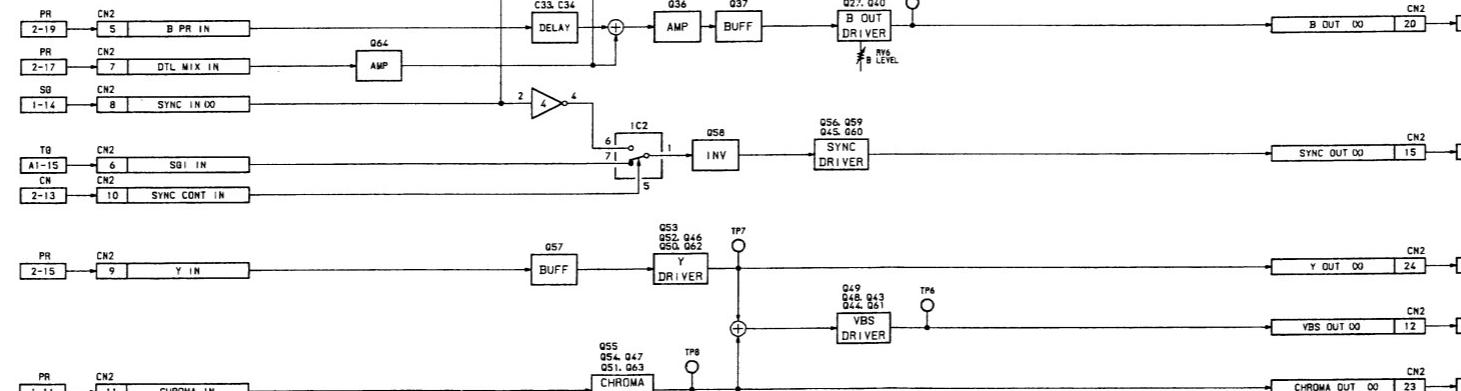
1



2



3



4

IF-354/354P BLOCK

DXC-930 (UC)
DXC-930 (U)
DXC-930P (EK)
DXC-960MD (UC)
XC-009 (U)
XC-009P (U)
B-DXC930-IF354BLOCK.M

5

IF-354/354P

DXC-930/930P
DXC-960MD
XC-009/009P

A-14

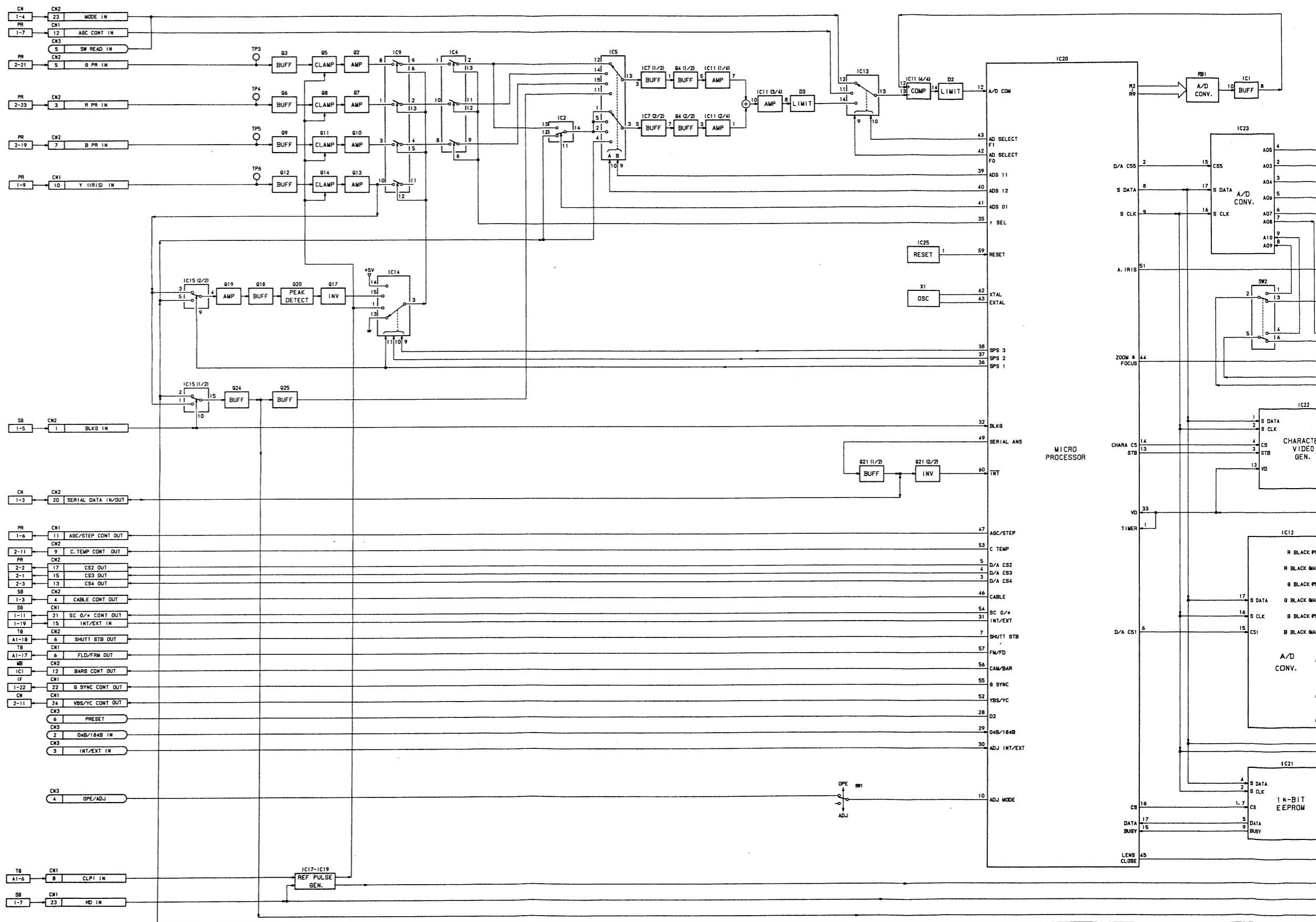
I

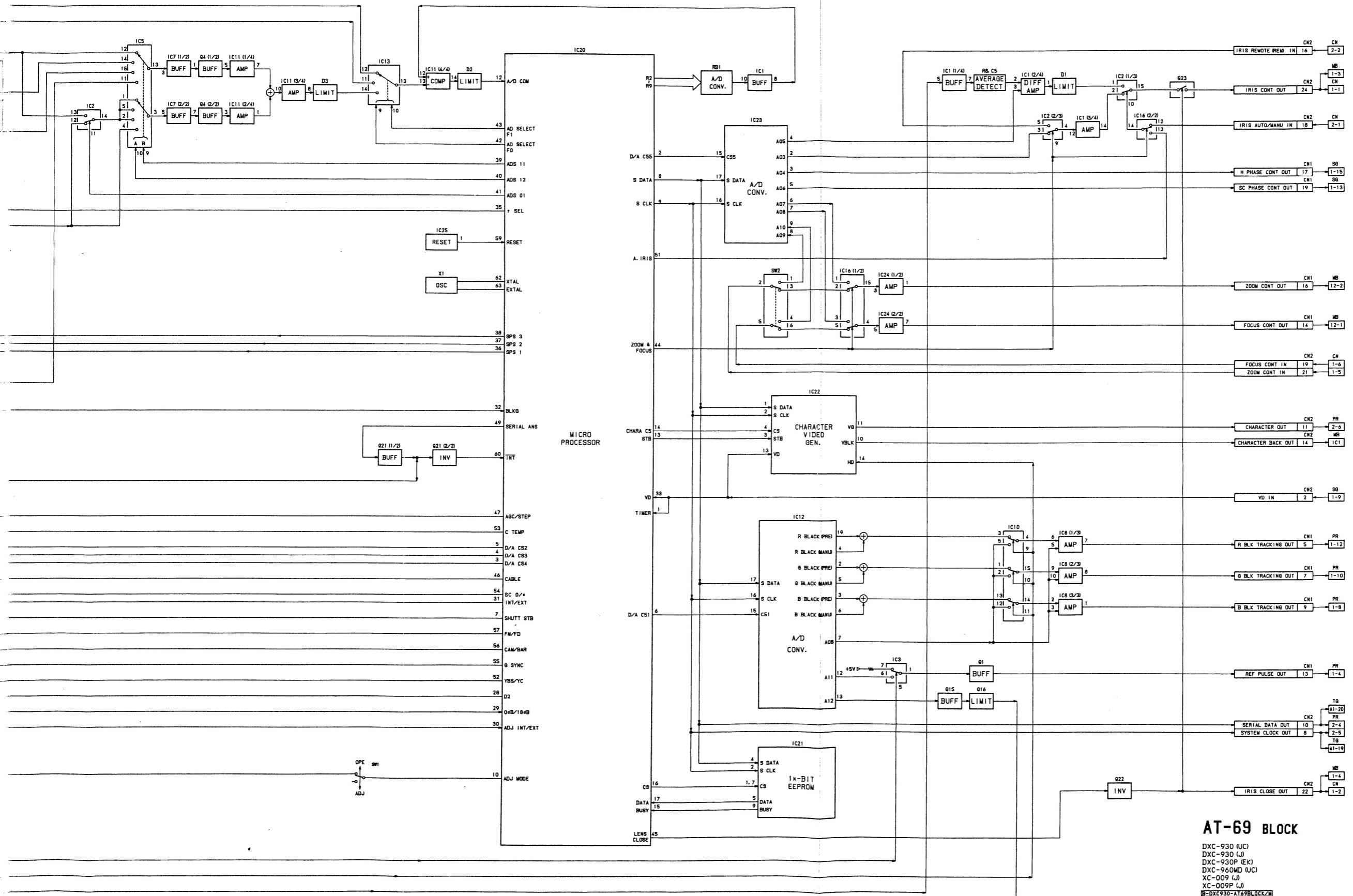
J

K

L

AT-69 BLOCK



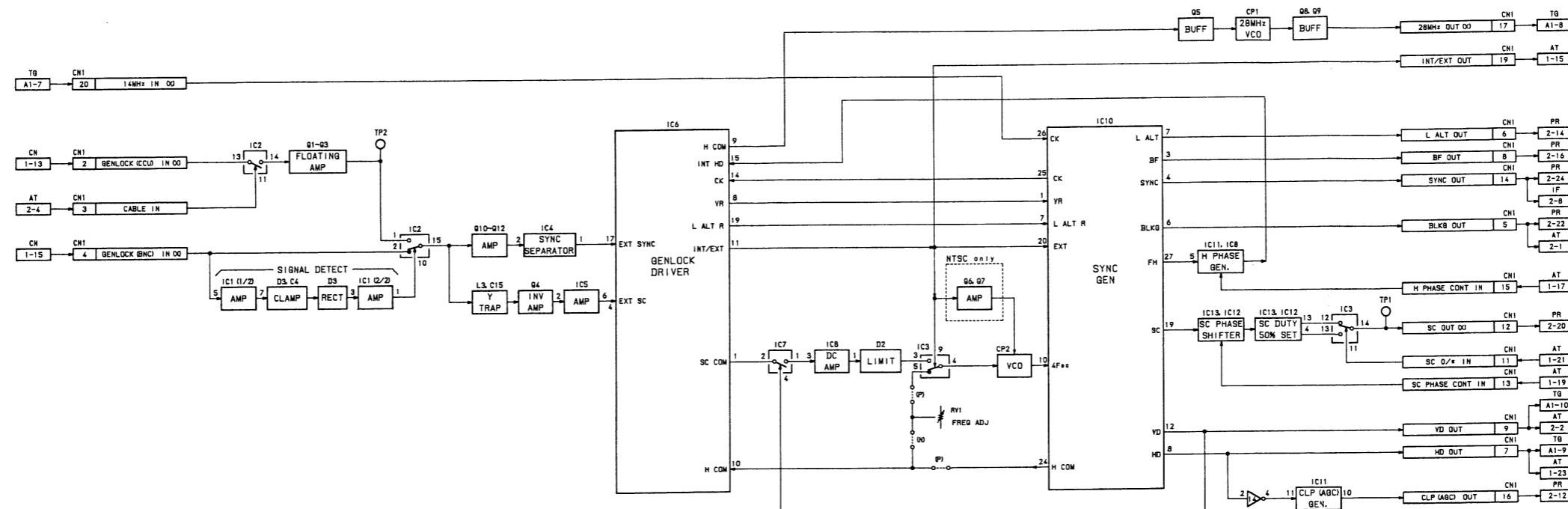


AT-69 BLOCK

DXC-930 (UC)
 DXC-930 (J)
 DXC-930P (EK)
 DXC-960MD (UC)
 XC-009 (J)
 XC-009P (J)
 B-DX930-AT69BLOCK4

SG-194/194P BLOCK

1



2

3

4

5

SG-194/194P BLOCK

DXC-930 (UC)
DXC-930 (J)
DXC-930P (EK)
DXC-960MD (UC)
XC-009 (J)
XC-009P (J)

B-DXC930-SG194BLOCKXH

SG-194/194P

A-20

DXC-930/930P
DXC-960MD
XC-009/009P

I

J

K

L

SECTION B

SEMICONDUCTOR

The circuit diagram of IC is obtained from the IC data book published by the manufacturer.

TYPE	PAGE	TYPE	PAGE
02DZ ? ?	B-2	TC4S66F	B-12
1SS181	B-2	TC4S69F	B-12
1SS226	B-2	TC4S81F	B-12
1SS303	B-2	TC4W53F	B-12
1SS304	B-2	TC74HC4538AF	B-10
		TC7S04F	B-11
2SA1576	B-2	TL062CPS	B-10
2SA1611	B-2	TL064CNS	B-12
2SC4103	B-2	TL084CNS	B-12
2SC4177	B-2	UPC2372GF-3B9	B-13
2SK852	B-2	UPC358G2	B-14
CX22017	B-3	UPC4558G2	B-14
CXA1439M	B-3	UPD6142G-101	B-14
CXA1592R	B-3	XP1401	B-2
CXD1216M	B-4	XP1501	B-2
CXD1217M	B-4	XP4601	B-2
CXD1250N	B-5	XP6401	B-2
CXD1256AR	B-7	XP6501	B-2
CXL5504M	B-7		
D2FL20	B-2		
HD14053BFP	B-7		
HD63B05Y0E64F	B-8		
LM1881M	B-8		
M62352GP	B-9		
M6M80011AFP	B-9		
MA143	B-2		
MC14051BF	B-9		
MC14052BF	B-10		
MC14053BF	B-7		
MC14069UBF	B-10		
MC34182M	B-10		
MC74AC04M	B-10		
MC74HC4053F	B-10		
NJM360M	B-10		
S-8054ALR-LN	B-11		
SC7S04F	B-11		
SN74HC00ANS	B-11		
SN74HC193ANS	B-11		
SN74HC27ANS	B-11		
SN74HC4066NS	B-11		
SN74HC74ANS	B-12		
SN74LS123NS	B-12		

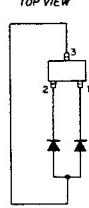
DIODE, TRANSISTOR

(SCALE 4/1)
TOP VIEW



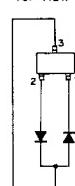
02DZ 7 7

(SCALE 4/1)
TOP VIEW



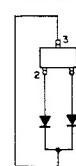
1SS181
1SS303

(SCALE 4/1)
TOP VIEW



1SS226

(SCALE 4/1)
TOP VIEW



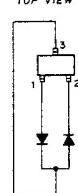
1SS304

(SCALE 2/1)
TOP VIEW



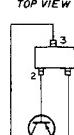
D2FL20

(SCALE 4/1)
TOP VIEW



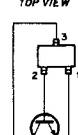
MA143

(SCALE 4/1)
TOP VIEW



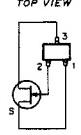
2SA1576
2SA1611

(SCALE 4/1)
TOP VIEW



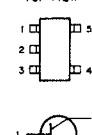
2SC4103
2SC4177

(SCALE 4/1)
TOP VIEW



2SK852

(SCALE 6/1)
TOP VIEW



XP1401

(SCALE 6/1)
TOP VIEW



XP1501

(SCALE 6/1)
TOP VIEW



XP4601

(SCALE 6/1)
TOP VIEW



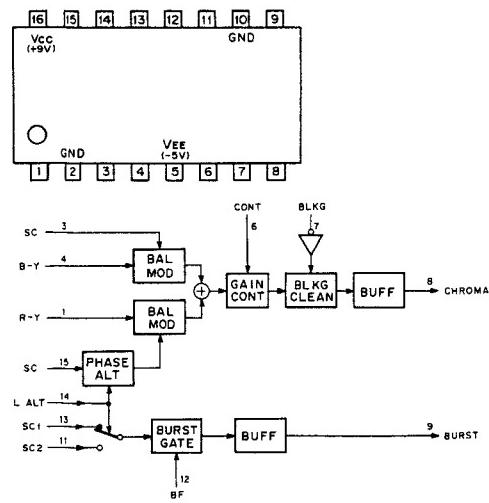
XP6401

(SCALE 6/1)
TOP VIEW

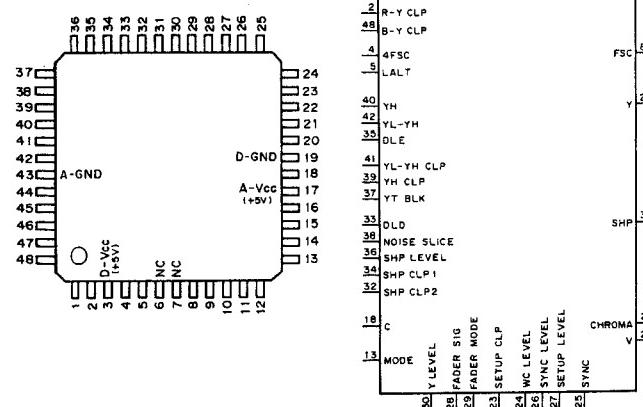


XP6501

CX22017 (SONY)
VIDEO SIGNAL PROCESSOR
- TOP VIEW -



CXA1592R (SONY) FLAT PACKAGE
ENCODER FOR CCD COLOR CAMERA
- TOP VIEW -

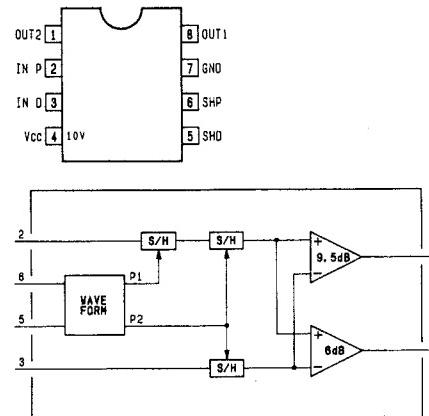


INPUT
 4FSC : 4FSC USED TO MAKE UP THE SUB CARRIER
 B LEVEL : CONTROLS THE BURST LEVEL
 BF : BURST FLAG PULSE
 BFG : INSERTS PULSE SLIGHT LARGER THAN BF ON BOTH ENDS
 C : INPUT FOR CHROMA SIGNAL PASSED THROUGH BPF
 CBLK : COMPOSITE BLANKING PULSE
 CLP2, 4 : CLAMP2, 4 PULSE INPUT
 CS AGC : SUPPRESS CHROMA SIGNAL AT THE AGC GAIN CONTROL SIGNAL
 CSY : SUPPRESS CHROMA SIGNAL AT THE Y SIGNAL
 CTBLK : CHROMA TITLER PULSE
 DLD : CONNECTS THE DELAY LINE DRIVE SIDE OF THE APERTURE SIGNAL
 DLE : CONNECTS THE DELAY LINE END SIDE OF THE APERTURE SIGNAL
 FADER MODE : BLACK FADER AND WHITE FADER MODE SELECT
 FADER SIG : CONTROLS THE SIGNAL SUPPRESS LEVEL DURING BLACK FADER AND AT THE SAME TIME CONTROLS THE SET UP LEVEL
 LALT : INPUT FOR LINE ALTERNATE SIGNAL DURING PAL MODE
 MODE : SELECTS NTSC, PAL OR NTSC X 2, PAL X 2 MODES
 NOISE SLICE : CONTROLS THE SLICE LEVEL OF THE APERTURE SIGNAL
 R-Y, B-Y : R-Y, B-Y SIGNAL
 R-Y, B-Y CLP : CONNECTING THE CAPACITOR FOR R-Y, B-Y MODULATOR CLAMP
 SETUP CLP : CONNECTING FOR THE WHITE CLIP CLAMP CAPACITOR
 SETUP LEVEL : SET UP LEVEL CONTROL
 SHP CLP, 2 : CONNECTS THE CLAMP CAPACITOR USED FOR THE SLICE OF THE APERTURE SIGNAL
 SHP LEVEL : CONTROL OF THE APERTURE SIGNAL LEVEL
 SYNC : SYNC PULSE
 SYNC LEVEL : SYNC LEVEL CONTROL
 WC LEVEL : WHITE CLIP LEVEL CONTROL
 Y LEVEL : Y SIGNAL LEVEL CONTROL
 YH : YH SIGNAL
 YH CLP : CONNECTS THE CAPACITOR FOR YH INPUT CLAMP
 YL-YH : V APERTURE SIGNALS, TITLER SIGNALS AND YL-YH SIGNALS
 YL-YH CLP : CONNECTS THE CAPACITOR FOR YL-YH INPUT CLAMP
 YTBLK : Y TITLER PULSE

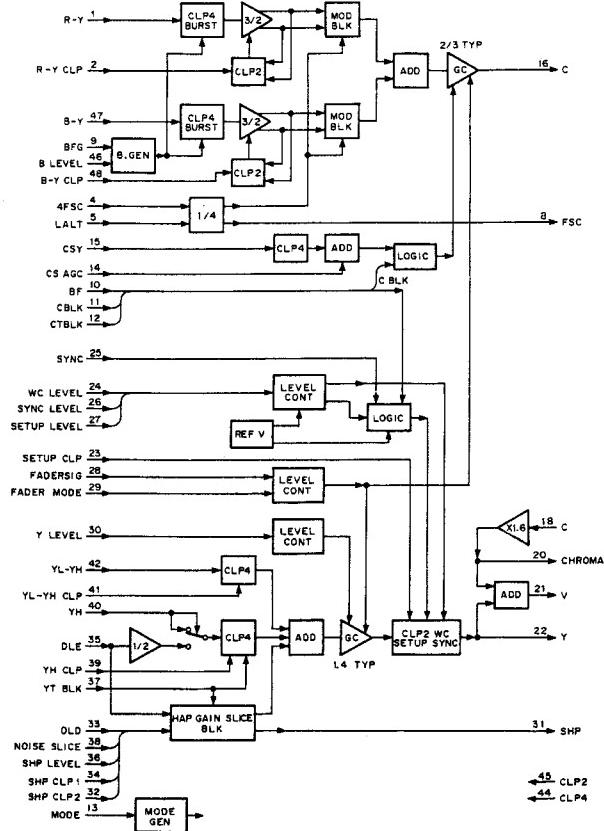
OUTPUT
 C : CHROMA SIGNAL OUTPUT
 CHROMA : CHROMA SIGNAL OUTPUT WHEN USED FOR Y/C SEPARATION OUTPUT
 FSC : OUTPUTS A SUB CARRIER WITH THE SAME PHASE AS B-Y
 SHP : APERTURE SIGNAL
 V : COMPOSITE VIDEO SIGNAL
 Y : Y SIGNAL OUTPUT WHEN USED FOR Y/C SEPARATION OUTPUT

DXC-930/930P
XCO09/009P

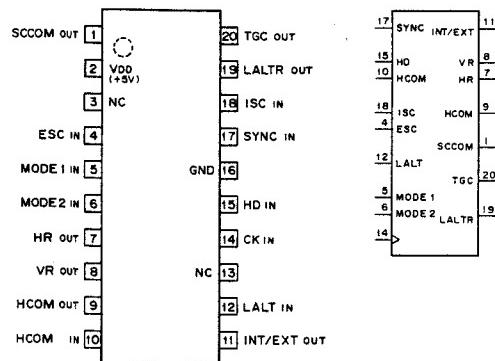
CXA1439M (SONY) FLAT PACKAGE
CORRELATED DOUBLE SAMPLING
- TOP VIEW -



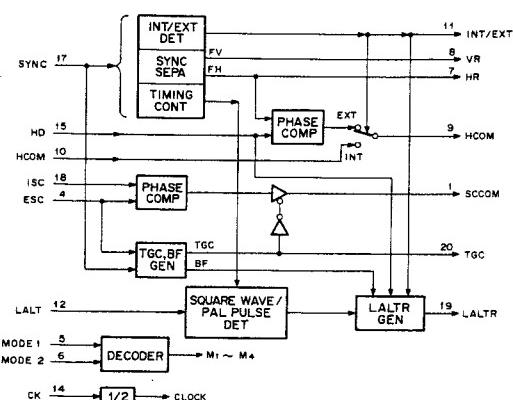
PIN No.	I/O	SYMBOL									
1	I	R-Y	13	I	MODE	25	I	SYNC	37	I	YTBLK
2	I	R-Y CLP	14	I	CS AGC	26	I	SYNC LEVEL	38	I	NOISE SLICE
3	-	D-Vcc(+ 5V)	15	I	CSY	27	I	SETUP LEVEL	39	I	YH CLP
4	I	4FSC	16	O	C	28	I	FADER SIG	40	I	YH
5	I	LALT	17	-	A-Vcc(+ 5V)	29	I	FADER MODE	41	I	YL-YH CLP
6	-	NC	18	I	C	30	I	Y LEVEL	42	I	YL-YH
7	-	NC	19	-	D-GND	31	O	SHP	43	-	A-GND
8	O	FSC	20	O	CHROMA	32	I	SHP CLP2	44	I	CLP4
9	I	BFG	21	O	V	33	I	DLD	45	I	CLP2
10	I	BF	22	O	Y	34	I	SHP CLP1	46	I	B LEVEL
11	I	CBLK	23	I	SETUP CLP	35	I	DLE	47	I	B-Y
12	I	CTBLK	24	I	WC LEVEL	36	I	SHP LEVEL	48	I	B-Y CLP



CXD1216M (SONY) FLAT PACKAGE

C-MOS GENLOCK DRIVER
~ TOP VIEW ~

INPUT	MODE	SYSTEM
0	M1	PAL-VBS
1	M2	PALM-VBS
0	M3	PAL,SECAM-VS/SC/LALT
1	M4	NTSC-VBS,NTSC-VS/SC PALM-VS/SC/LALT

0 : LOW LEVEL
1 : HIGH LEVEL

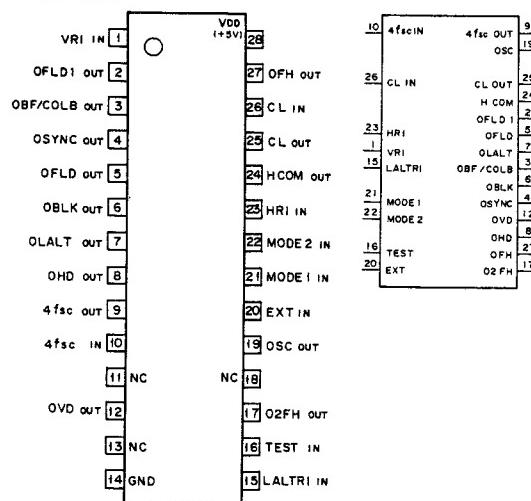
INPUT

- CK : 4fsc CLOCK INPUT
- ESC : SC/COLOR BURST
- HCOM : PHASE COMPARATOR FROM CXD1217
- HD : LINE DRIVE FROM CXD1217
- ISC : SUBCARRIER FROM CXD1217
- LALT : LALT FROM REFERENCE SIGNAL GENERATOR
- MODE1,2 : SYSTEM SELECT
- SYNC : SYNC FROM REFERENCE SIGNAL GENERATOR

OUTPUT

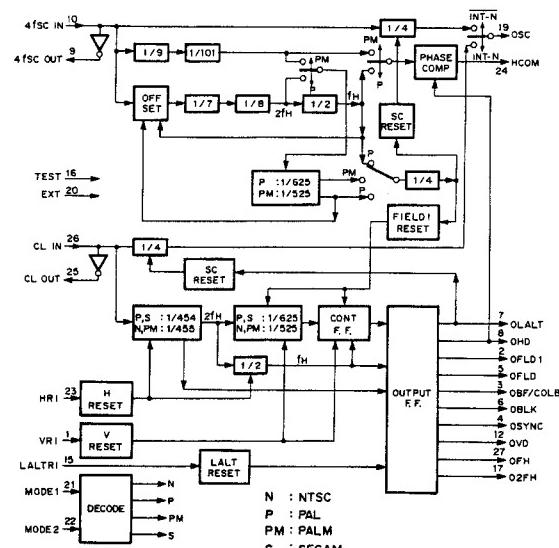
- HCOM : PHASE COMPARATOR HR WITH HD
- HR : 1H OF SYNC SEPARATE
- INT/EXT : INTERNAL/EXTERNAL SPECIFIED
- LALT : LINE CHANGE RESET
- SCCOMM : PHASE COMPARATOR ESC WITH ISC
- TGC : TRISTATE CONTROL
- VR : 1V OF SYNC SEPARATE

CXD1217M (SONY) FLAT PACKAGE

C-MOS SYNC GENERATOR
~ TOP VIEW ~

SYSTEM	4fsc	CLOCK
NTSC	910fh	910fh
PAL	1135fh+2fh	908fh
PALM	909fh	910fh
SECAM	—	908fh

INPUT	MODE1	MODE2	SYSTEM
0	0	NTSC	
0	1	SECAM	
1	0	PALM	
1	1	PAL	

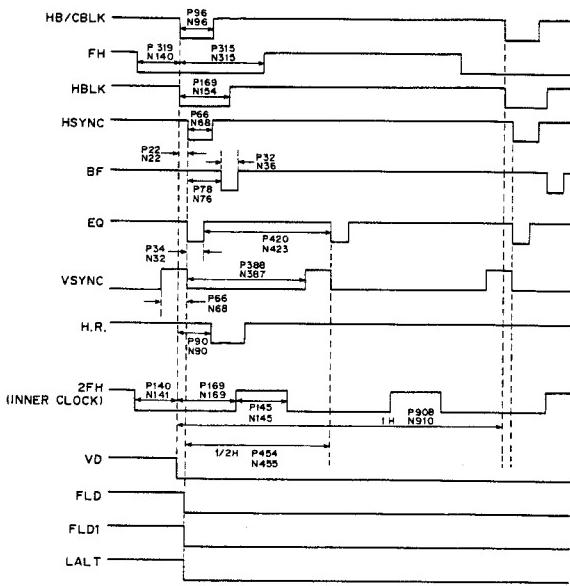
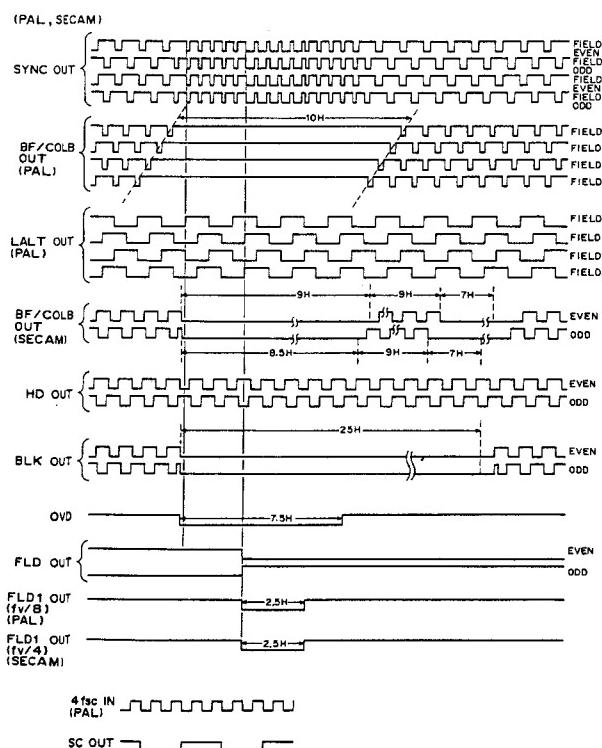
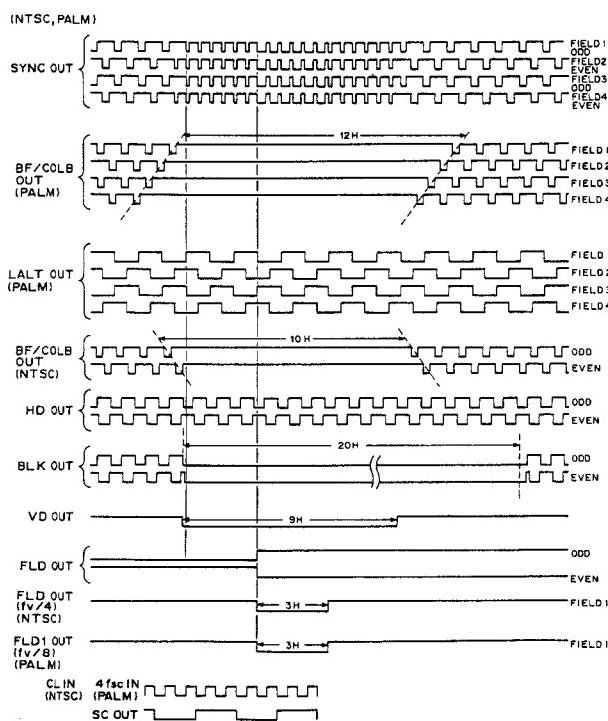
0 : LOW LEVEL
1 : HIGH LEVEL

INPUT

- 4fsc IN : 4fsc INPUT
- CL IN : CLOCK INPUT
- EXT : SYNC MODE SELECT (L : INTERNAL/H : EXTERNAL)
- HRI : H RESET
- LALTR : LINE CHANGE RESET
- MODE 1,2 : SYSTEM SELECT
- VRI : V RESET

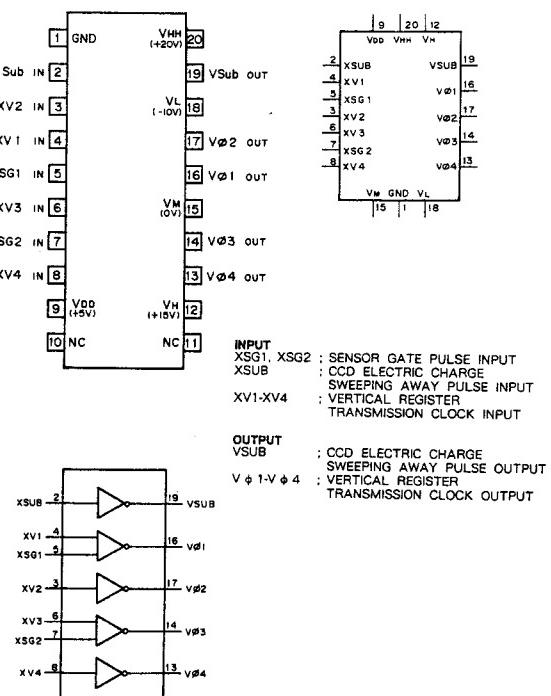
OUTPUT

- 4fsc OUT : 4fsc OUTPUT
- CL OUT : CLOCK OUTPUT
- HCOM : PHASE COMPARATOR
- O2FH : 2FH OUTPUT
- OBF/COBL : BURST FLAG/COLOR BLANKING
- OBLK : COMPOSITE BLANKING
- OFF : H FREQUENCY
- OFLD : EVEN, ODD
- OFLD1 : FIELD
- OHD : H DRIVE
- OLALT : LINE CHANGE
- OSC : COMPOSITE SYNC
- OVD : V DRIVE

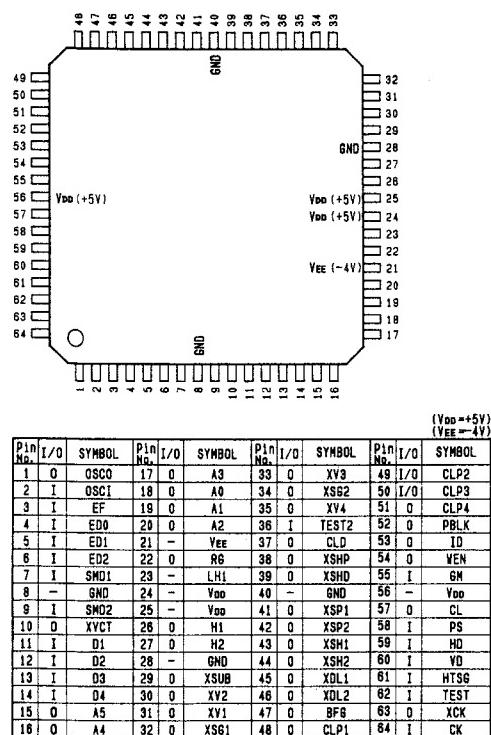


P : PAL, SECAM
N : NTSC, PALM

CXD1250N (SONY) FLAT PACKAGE
CMOS VERTICAL CLOCK DRIVER FOR CCD
- TOP VIEW -

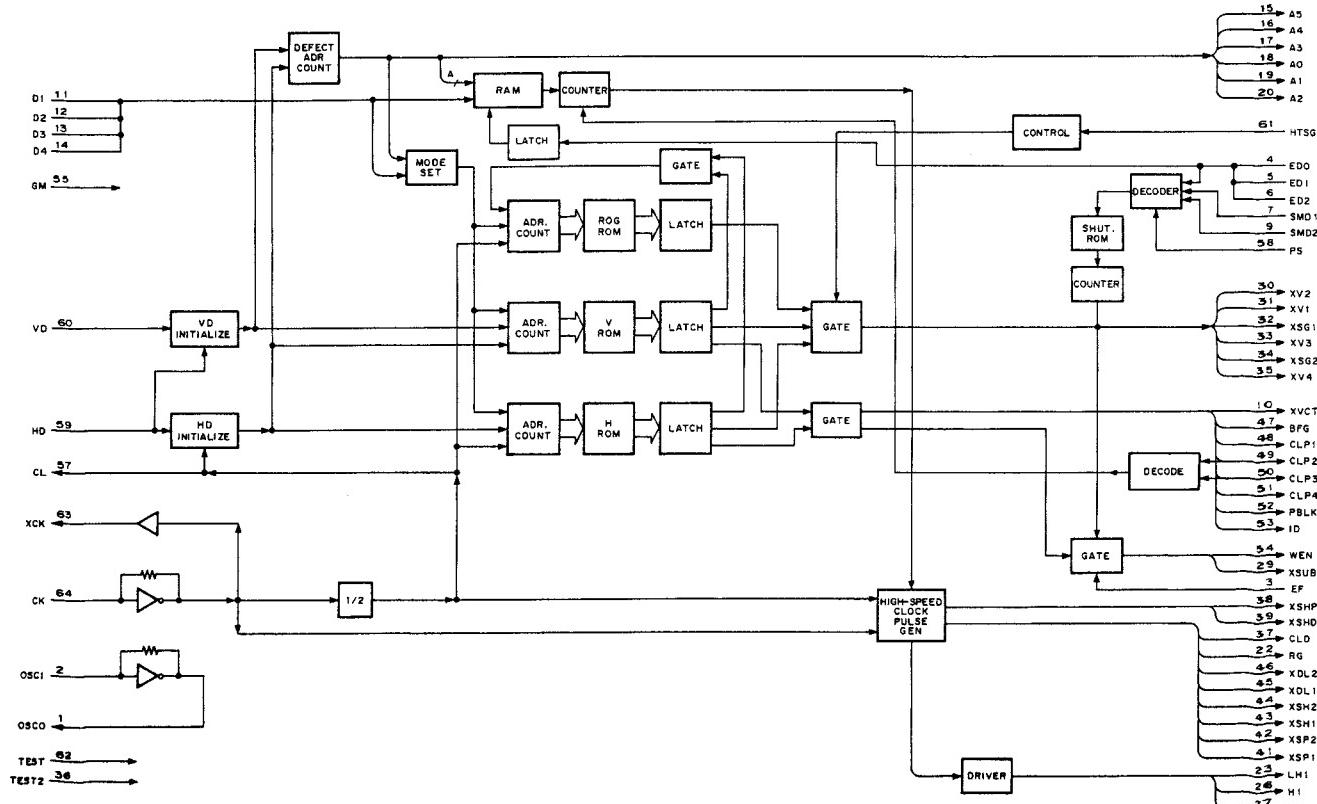


CXD1256AR (SONY) FLAT PACKAGE

TIMING GENERATOR FOR CCD CAMERA
- TOP VIEW -

INPUT	FUNCTION
59 HD	8fsc CLOCK
60 VD	: WHEN EXTERNAL ROM IS USED, DATA INPUT. : WHEN NOT USED, L: NO ERROR COMPENSATION
4 XV3	: WHEN EXTERNAL ROM IS USED, DATA INPUT. : WHEN NOT USED, L: COLOR H: B/W
5 XV2	: WHEN EXTERNAL ROM IS USED, DATA INPUT. : WHEN NOT USED, L: COLOR H: B/W
5 EDO	: WHEN EXTERNAL ROM IS USED, DATA INPUT. : WHEN NOT USED, FIXED TO LOW
6 ED1	: WHEN EXTERNAL ROM IS USED, DATA INPUT. : WHEN NOT USED, L: NTSC H: PAL
7 ED2	: SHUTTER SPEED SET. WHEN SERIAL MODE, STROBE INPUT.
9 SMD1	: SHUTTER SPEED SET. WHEN SERIAL MODE, CLOCK INPUT.
10 SMD2	: SHUTTER SPEED SET. WHEN SERIAL MODE, DATA INPUT.
11 PS	: DATA INPUT METHOD CHANGE FOR ERROR COMPENSATION
12 HTSG	: EXTERNAL ROM USED
13 XSG1	: SERIAL INPUT FROM MICROPROCESSOR
14 XSG2	: FOR ANALOG SIGNAL, H: FOR DIGITAL SIGNAL
15 XDL1	: HORIZONTAL DRIVE
16 XDL2	: XSG1, XSG2 CONTROL
17 XSH1	: H: LS0 AND 2 STOPPED
18 XSH2	: INVERTER INPUT FOR OSCILLATION
19 XSP1	: ELECTRONIC SHUTTER SPEED INPUT METHOD CHANGE
20 XSP2	: H: PARALLEL INPUT
21 XSUB	: L: SERIAL INPUT
22 VEN	: SMD1, SMD2 TEST, TEST2 FOR TEST (NORMALLY LOW)
23 VD	: VERTICAL DRIVE
OUTPUT	
1 A1	
2 A0	
3 EF	
4 CLP1	
5 CLP2	
6 GM	
7 CLP3	
8 CLP4	
9 TEST	
10 TEST2	
11 PBLK	
12 ID	
13 CLD	
14 H1, H2	
15 H1	
16 H2	
17 CL	
18 CLP1, CLP2	
19 CLP3, CLP4	
20 PBLK	
21 ID	
22 RG	
23 WEN	
24 XCK	
25 XVCT	
26 A5-A0	
27 BFG	
28 CL	
29 CLD	
30 CLP1	
31 CLP2	
32 CLP3	
33 CLP4	
34 PBLK	
35 ID	
36 XCK	
37 XVT	
38 ADDRESS FOR EXTERNAL ROM	
39 PULSE FOR ENCODER + CHROMA MODULATOR	
40 WHEN GM = H, ERROR POSITION SPECIFYING PULSE	
41 4fsc CLOCK	
42 4fsc CLOCK	
43 PULSE FOR CLAMP	
44 CLOCK FOR CCD HORIZONTAL REGISTER DRIVE	
45 LINE IDENTIFICATION	
46 INVERTER OUTPUT FOR OSCILLATION	
47 BLANKING CLEANING PULSE	
48 RESET GATE PULSE	
49 WRITE ENABLE (ONLY WHEN LOW SHUTTER SPEED)	
50 8fsc CLOCK	
51 XDL1, XDL2	
52 CLOCK FOR DELAY LINE	
53 XSG1, XSG2	
54 CCD SENSOR ELECTRIC CHARGE READ OUT PULSE	
55 XSH1, XSH2	
56 SWITCHING SAMPLE HOLD PULSE	
57 XSHD	
58 PULSE FOR DATA SAMPLE HOLD	
59 XSHP	
60 PRE-CHARGE LEVEL SAMPLE HOLD PULSE	
61 XSP1, XSP2	
62 CHROMA SEPARATION SAMPLE HOLD PULSE	
63 XSUB	
64 XSUB	
65 ELECTRIC CHARGE DISCHARGING PULSE	
66 XV1-XV4	
67 VERTICAL SCANNING CLOCK	
68 XVT	
69 POWER CONTROL FOR EXTERNAL ROM	

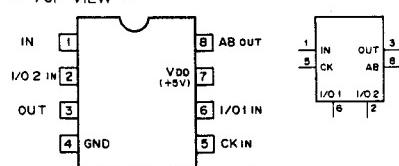
INPUT/OUTPUT
CLP2, CLP3 : PULSE FOR CLAMP. WHEN GM = H, STANDBY MODE SWITCHING INPUT



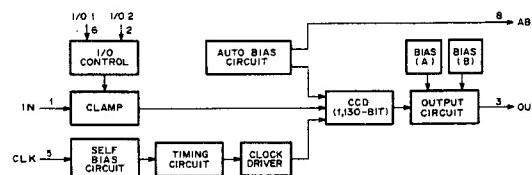
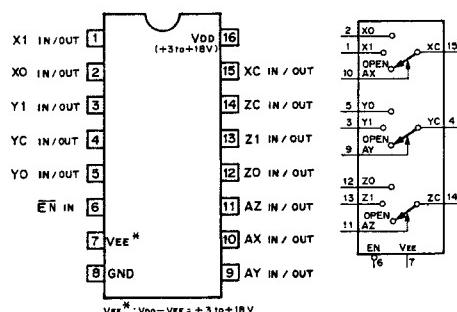
CXL5504M (SONY)

CMOS CCD 1H DELAY LINE

- TOP VIEW -



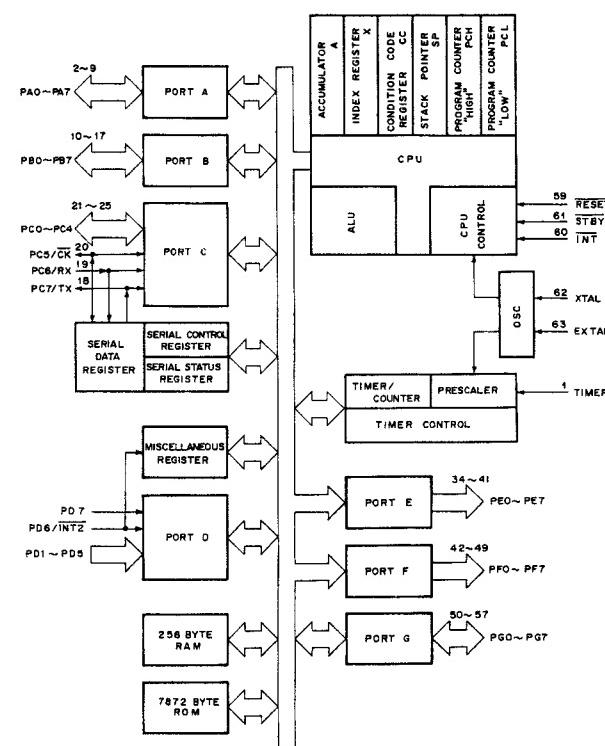
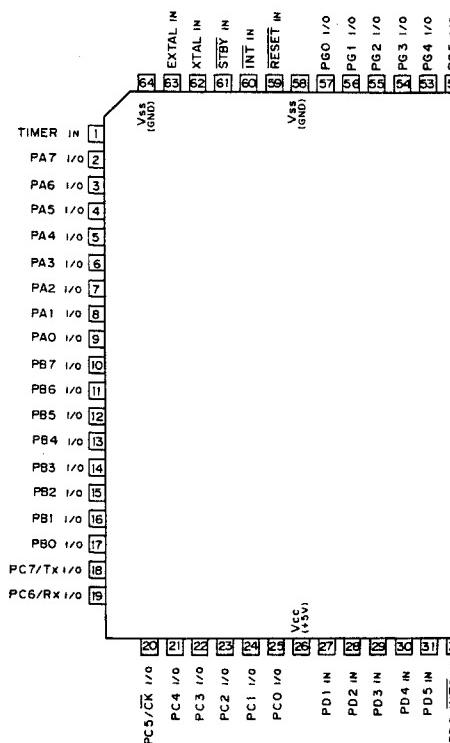
AB ; AUTO BIAS DC OUTPUT I/O 1, I/O 2 ; I/O CONTROL 1,2 INPUTS
 CK ; CLOCK INPUT OUT ; SIGNAL OUTPUT
 IN ; SIGNAL INPUT

HD14053BFP (HITACHI) FLAT PACKAGE
MC14053BF (MOTOROLA) FLAT PACKAGEC-MOS TRIPLE 2-CHANNEL ANALOG MULTIPLEXERS/DEMULTIPLEXERS
- TOP VIEW -

CONT. INPUTS	ON	
EN	A (X,Y,Z)	CHANNEL
0; LOW LEVEL	0	0
1; HIGH LEVEL	1	1
X; DONT CARE.	X	OPEN

HD63B05Y0E64F (HITACHI) FLAT PACKAGE

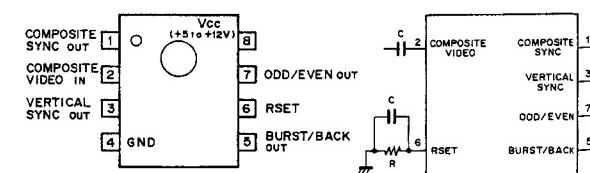
C-MOS 8-BIT MICROPROCESSOR UNIT
- TOP VIEW -



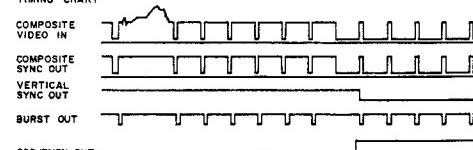
27	PD1	PE0	34	PA0~PA7
28	PD2	PE1	35	8-BIT I/O PORT B
29	PD3	PE2	36	8-BIT I/O PORT C
30	PD4	PE3	37	7-BIT IN PORT D
31	PD5	PE4	38	8-BIT OUT PORT E
32	PD6/INT2	PE5	39	8-BIT OUT PORT F
33	PD7	PE6	40	8-BIT I/O PORT G
34		PE7	41	RESET IN
35			42	STBY
36			43	INT
37			44	INT2
38			45	TIMER
39			46	XTAL
40			47	EXTAL
41			48	CK
42			49	RX
43			50	TX
44			51	PC0
45			52	PC1
46			53	PC2
47			54	PC3
48			55	PC4
49			56	PC5/CK
50			57	PC6/RX
51			58	PC7/Tx
52			59	PG0
53			60	PG1
54			61	PG2
55			62	PG3
56			63	PG4
57			64	PG5
58			65	PG6
59			66	PG7

LM1881M (NS) FLAT PACKAGE

VIDEO SYNC SEPARATOR
- TOP VIEW -

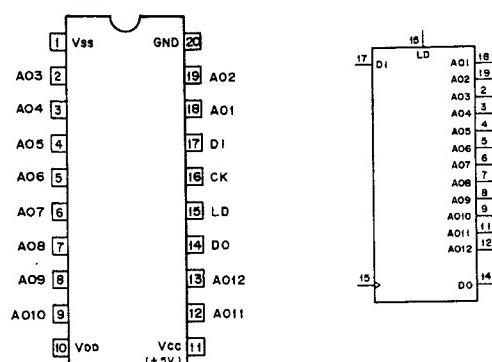


TIMING CHART



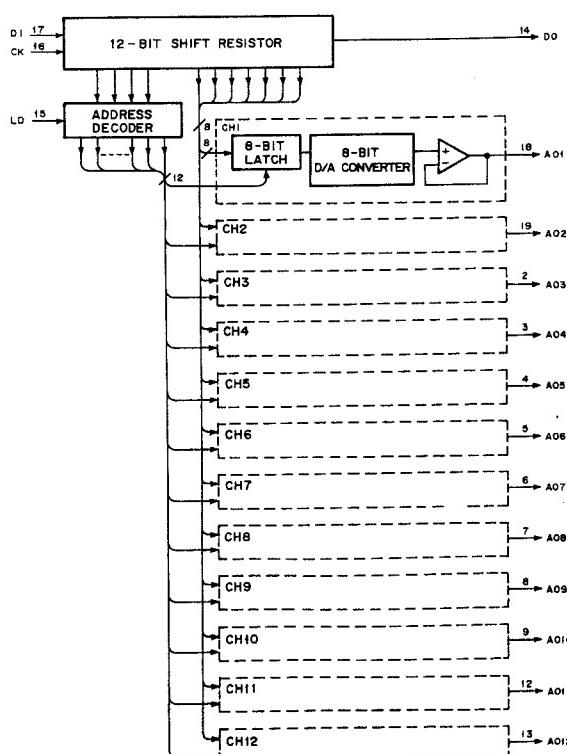
M62352GP (MITSUBISHI) FLAT PACKAGE
C-MOS 8-BITX12 CHANNEL D/A CONVERTER
(WITH BUFFER OPERATIONAL AMPLIFIER)

- TOP VIEW -

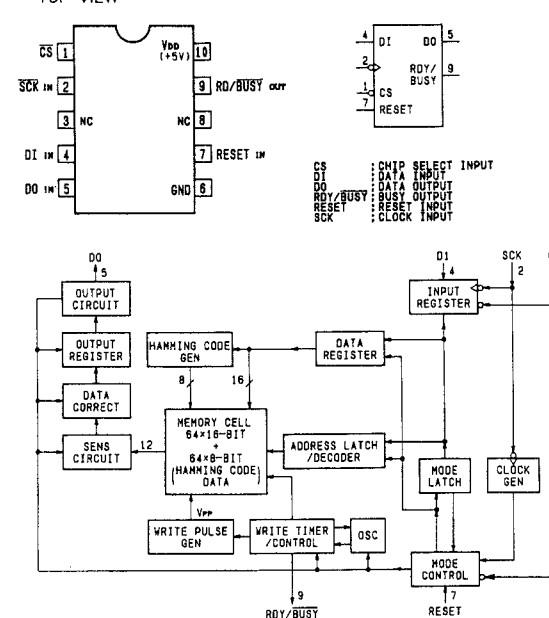


AO1 - AO12: 8-BIT D/A OUTPUT
CK : CLOCK INPUT
DI : SERIAL DATA INPUT
DO : DATA OUTPUT

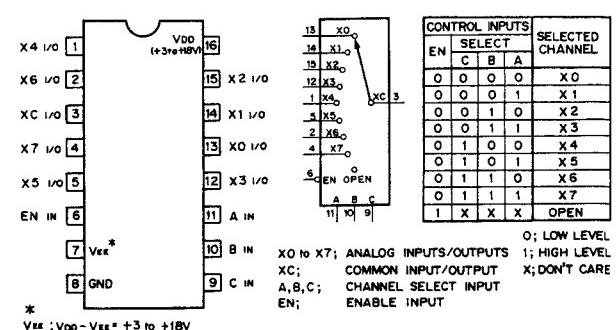
NOTE:
- 3.5V < Vdd < Vcc
- 3.5V < Vss < Vcc



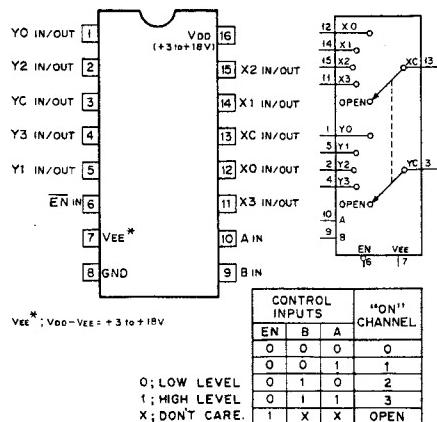
M6M80011AFP (MITSUBISHI) FLAT PACKAGE
C-MOS 1k (64x16) BIT ERASABLE PROM
- TOP VIEW -



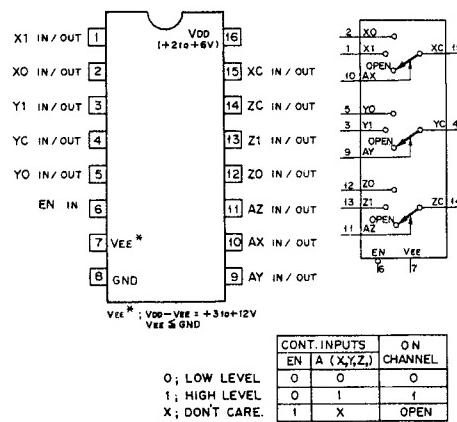
MC14051BF (MOTOROLA) FLAT PACKAGE
C-MOS 8-CHANNEL ANALOG MULTIPLEXER/DEMUTIPLEXER
- TOP VIEW -



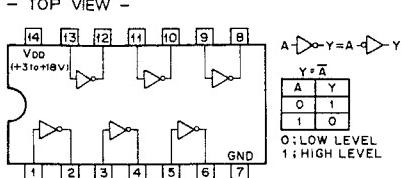
MC14052BF (MOTOROLA) FLAT PACKAGE
C-MOS DUAL 4-CHANNEL ANALOG MULTIPLEXERS/DEMULITPLEXERS
- TOP VIEW -



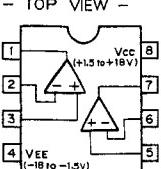
MC74HC4053F (MOTOROLA) FLAT PACKAGE
C-MOS TRIPLE 2-CHANNEL ANALOG MULTIPLEXER/DEMULITPLEXER
- TOP VIEW -



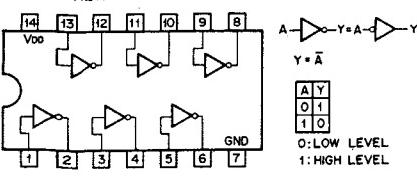
MC14069UBF (MOTOROLA)
C-MOS INVERTER
- TOP VIEW -



MC34182M (MOTOROLA) FLAT PACKAGE
TL062CPS (TI) FLAT PACKAGE
OPERATIONAL AMPLIFIER
(JFET INPUT)
- TOP VIEW -



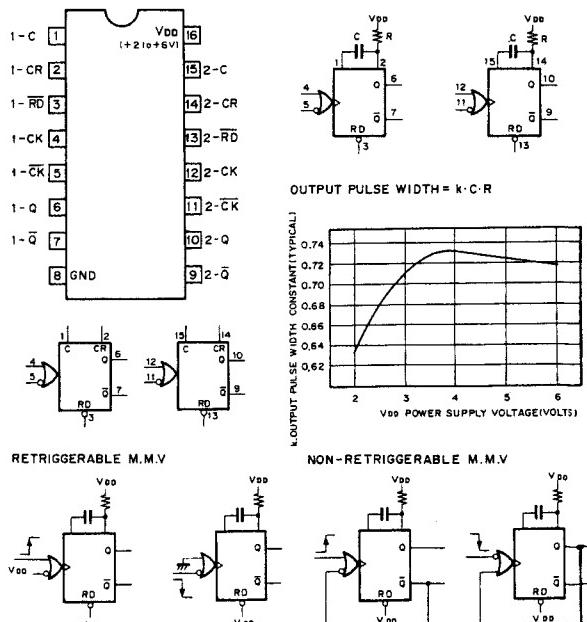
MC74AC04M (MOTOROLA) FLAT PACKAGE
C-MOS HEX INVERTERS
- TOP VIEW -



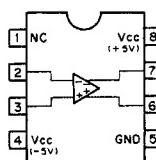
NOTE:	
TYPE	V _{DD}
74HCT04 TYPE	+5V
TC74AC04 TYPE	+2 to +5.5V
74ACT04 TYPE	+4.5 to +5.5V
OTHER TYPES	+2 to +6V

TC74HC4538AF (TOSHIBA) FLAT PACKAGE

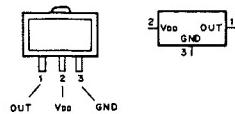
C-MOS DUAL RETRIGGERABLE / NON - RETRIGGERABLE MONOSTABLE
MULTIVIBRATOR
- TOP VIEW -



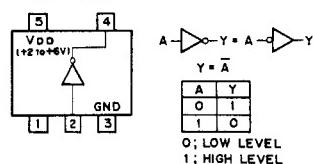
NJM360M (JRC) FLAT PACKAGE
HIGH SPEED VOLTAGE COMPARATOR
(TTL OUTPUT)
- TOP VIEW -



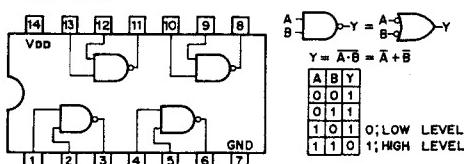
S-8054ALR-LN (SEIKO)
C-MOS VOLTAGE DETECTOR
- TOP VIEW -



SC7S04F (MOTOROLA) FLAT PACKAGE
TC7S04F (TOSHIBA) FLAT PACKAGE
C-MOS INVERTER
- TOP VIEW -

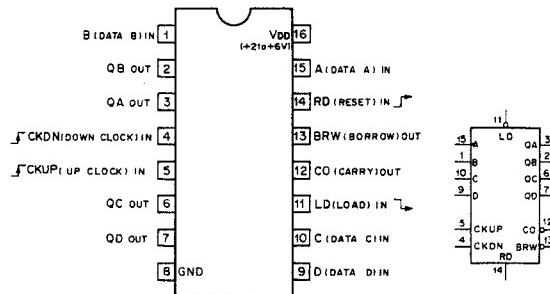


SN74HC00ANS (TI) FLAT PACKAGE
C-MOS QUAD 2-INPUT NAND GATES
- TOP VIEW -

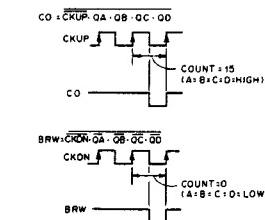


TYPE	V _{DD}
TC74AC00 TYPE	+2 to +5.5V
MCT74HCT00N	+5V
74ACT00 TYPE	+4.5 to +5.5V
OTHER TYPES	+2 to +6V

SN74HC193ANS (TI) FLAT PACKAGE
C-MOS PRESETTABLE SYNCHRONOUS 4-BIT UP/DOWN COUNTER
- TOP VIEW -



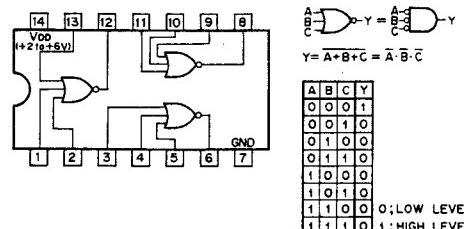
CONTROL INPUT	MODE
RD	RESET TO ZERO
LD	PRESET
CKUP	UP COUNT
CKDN	DOWN COUNT
QD	NO COUNT



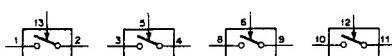
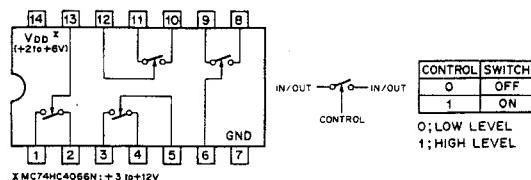
COUNT	OUTPUT
0	QD QC QB QA
1	0 0 0 0 1
2	0 0 0 1 0
3	0 0 1 0 1
4	0 1 0 0 0
5	0 1 0 0 1
6	0 1 1 0 0
7	0 1 1 1 1
8	1 0 0 0 0
9	1 0 0 0 1
10	1 0 1 0 0
11	1 0 1 1 1
12	1 1 0 0 0
13	1 1 0 0 1
14	1 1 1 0 0
15	1 1 1 1 1

0; LOW LEVEL
1; HIGH LEVEL
X; DON'T CARE

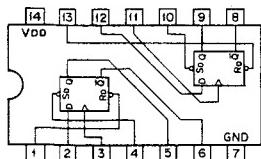
SN74HC27ANS (TI) FLAT PACKAGE
C-MOS 3-LINE POSITIVE-NOR GATE
- TOP VIEW -



SN74HC4066NS (TI) FLAT PACKAGE
C-MOS BILATERAL ANALOG SWITCH
- TOP VIEW -

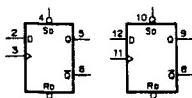


SN74HC74ANS (TI) FLAT PACKAGE

C-MOS DUAL D-TYPE FLIP-FLOPS WITH DIRECT SET/RESET
- TOP VIEW -

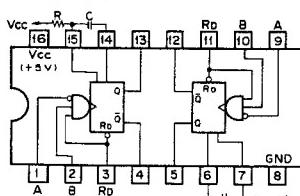
INPUTS	OUTPUTS
S0 RD CK D	Qn+1 Qn+1
0 1 X X	1 0
1 0 X X	0 1
0 0 X X	1 1
1 1 F 1 1	0 1
1 1 F 0 0	1 0
1 1 0 X	Qn Qn

0; LOW LEVEL
1; HIGH LEVEL
X; DON'T CARE



NOTE :	TYPE	Vcc
	TC74HC74AF	+5V
	TC74ACT74 TYPE	+2 to +5.5V
	74ACT74 TYPE	+4.5 to +5.5V
	OTHER TYPES	+2 to +6V

SN74LS123NS (TI) FLAT PACKAGE

TTL RETRIGGERABLE MONOSTABLE MULTIVIBRATOR WITH DIRECT RESET
- TOP VIEW -

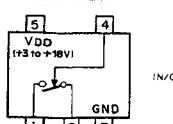
INPUTS	OUTPUTS
Rd A B	Q Q
0 X X	0 1
X 1 X	0 1
X X 0	0 1
1 0 I	1 L
1 1 I	1 L
1 0 1	1 L

OUTPUT PULSE WIDTH

$$\begin{aligned} & \text{L123; } T_w = 0.28 \left(\frac{700}{R} \right) CR \\ & \text{L123; } T_w = 0.33 \left(\frac{700}{R} \right) CR \\ & \text{L123; } T_w = 0.25 \left(\frac{700}{R} \right) CR \\ & \text{L123; } T_w = 0.29 \left(\frac{700}{R} \right) CR \\ & \text{L123; } T_w = 0.45 CR \end{aligned}$$

CONTROL	SWITCH
0; LOW LEVEL	OFF
1; HIGH LEVEL	ON

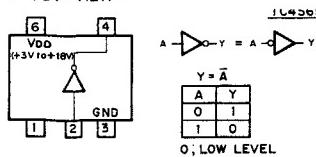
TC4S66F (TOSHIBA)

C-MOS BILATERAL ANALOG SWITCH
- TOP VIEW -

IN/OUT → IN/OUT

CONTROL	SWITCH
0; LOW LEVEL	OFF
1; HIGH LEVEL	ON

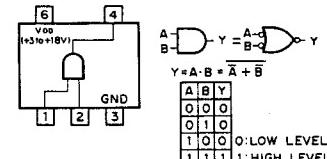
TC4S69F (TOSHIBA) FLAT PACKAGE

C-MOS INVERTER BUFFER
- TOP VIEW -J45563F
A → Y = A → Y

A	Y
0	1
1	0

0; LOW LEVEL
1; HIGH LEVEL

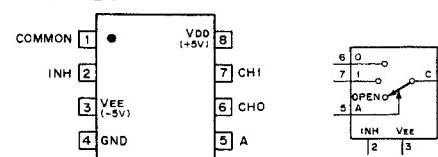
TC4S81F (TOSHIBA) FLAT PACKAGE

C-MOS 2-INPUT AND GATE
- TOP VIEW -

6	4
Vdd (+3 to +18V)	GND
A	B
Y = A · B = A + B	
1	2
3	

A B Y
0 0 0
0 1 0
1 0 0 O: LOW LEVEL
1 1 1 1: HIGH LEVEL

TC4W53F (TOSHIBA) FLAT PACKAGE

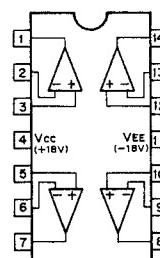
C-MOS 2-CHANNEL MULTIPLEXER/DEMULTIPLEXER
- TOP VIEW -

CONT. INPUT	ON CHANNEL
INH 2	0
Vee (-5V)	1
4 GND	X OPEN

TL064CNS (TI) FLAT PACKAGE

OPERATIONAL AMPLIFIER
(J FET-INPUT)

- TOP VIEW -

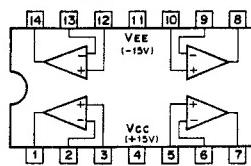


TL084CNS (TI) FLAT PACKAGE

OPERATIONAL AMPLIFIER

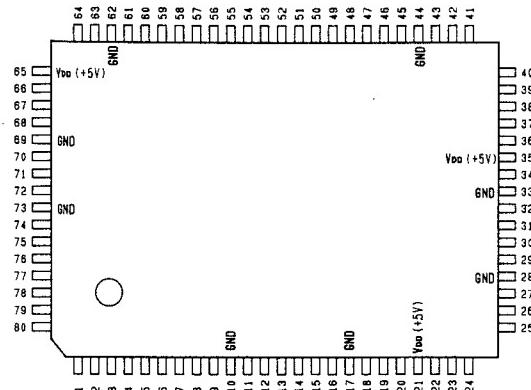
(J FET-INPUT)

- TOP VIEW -

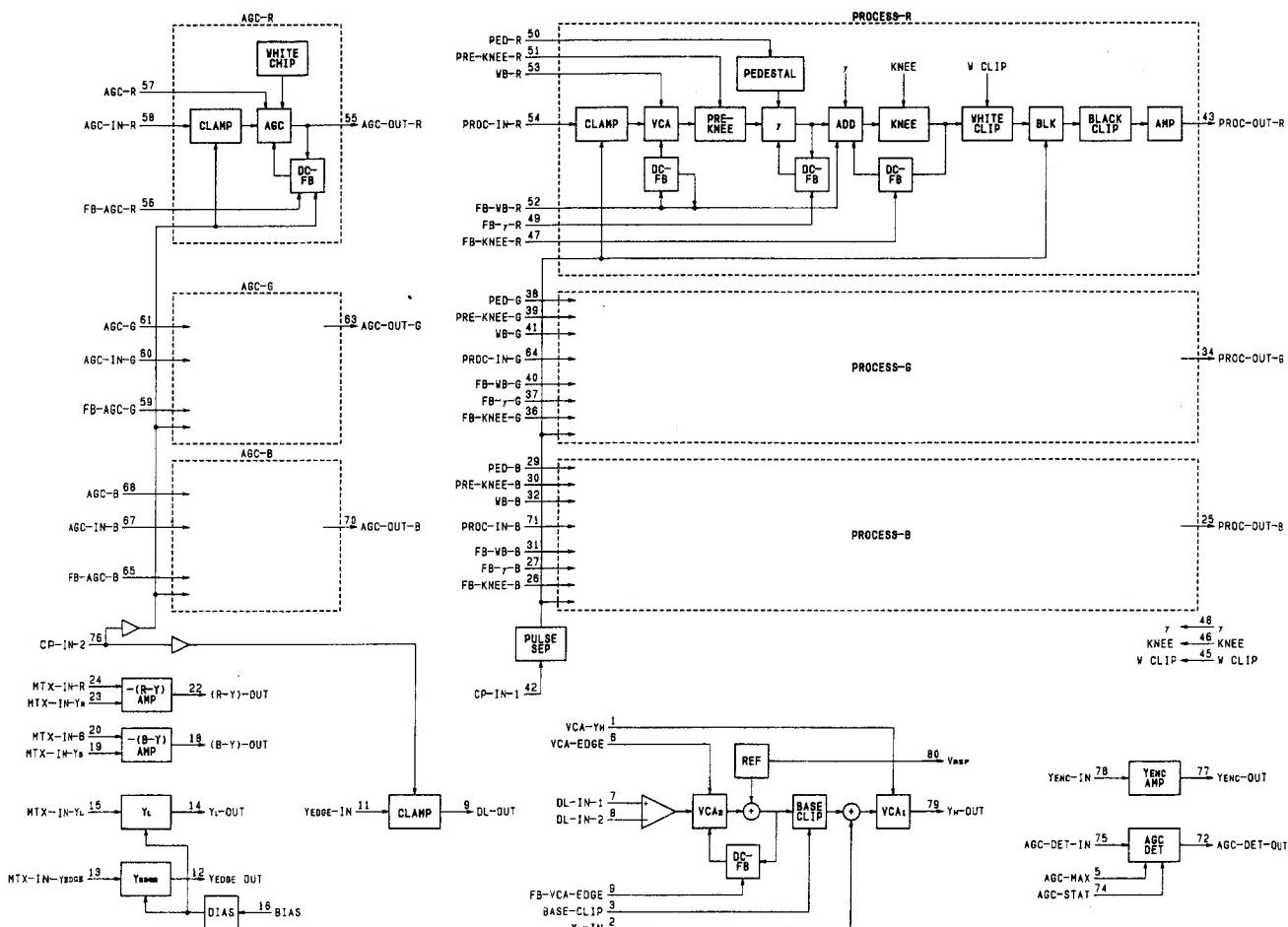


UPC2372GF-3B9 (NEC) FLAT PACKAGE

3-CH PROCESS AMP & AGC
- TOP VIEW -



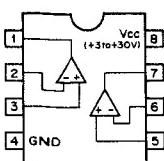
(Vdd = +5V)								
PIN No.	I/O	SYMBOL	PIN No.	I/O	SYMBOL	PIN No.	I/O	SYMBOL
1	I	VCA-YH	21	-	Vdd	41	I	WB-G
2	I	YL-IN	22	O	(R-Y)-OUT	42	I	CP-IN-1
3	I	BASE-CLIP	23	I	MTX-IN-YR	43	O	PROC-OUT-R
4	I	FB-VCA-EDGE	24	I	MTX-IN-R	44	-	GND
5	I	AGC-MAX	25	O	PROC-OUT-B	45	I	WCLIP
6	I	VCA-EDGE	26	I	FB-KNEE-B	46	I	KNEE
7	I	DL-IN1	27	I	FB-Y-B	47	I	FB-KNEE-R
8	I	DL-IN2	28	-	GND	48	I	Y
9	O	DL-OUT	29	I	PED-B	49	I	FB-Y-R
10	-	GND	30	I	Pre-KNEE-B	50	I	PED-R
11	I	YEDGE IN	31	I	FB-WB-B	51	I	Pre-KNEE-R
12	O	YEDGE OUT	32	I	WB-B	52	I	FB-WB-R
13	I	MTX-IN-YEDGE	33	-	GND	53	I	WB-R
14	O	YL-OUT	34	O	PROC-OUT-G	54	I	PROC-IN-R
15	I	MIX-IN-YL	35	-	Vdd	55	O	AGC-OUT-R
16	O	BIAS	36	I	FB-KNEE-G	56	I	FB-AGC-R
17	-	GND	37	I	FB-Y-G	57	I	AGC-R
18	O	(B-Y)-OUT	38	I	PED-G	58	I	AGC-IN-R
19	I	MTX-IN-Yg	39	I	Pre-KNEE-G	59	I	FB-AGC-G
20	I	MTX-IN-B	40	I	FB-WB-G	60	I	AGC-IN-G
							O	VREF



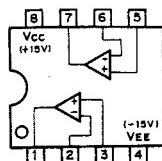
INPUT	
AGC STAT	: AGC THRESHOLD CONTROL
AGC-B	: AGC GAIN CONTROL FOR B-CH
AGC-DET-IN	: AGC DETECT
AGC-G	: AGC GAIN CONTROL FOR G-CH
AGC-IN-B	: B-CH AGC
AGC-IN-G	: G-CH AGC
AGC-IN-R	: R-CH AGC
AGC-MAX	: AGC MAX GAIN CONTROL
AGC-R	: AGC GAIN CONTROL FOR R-CH
BASE-CLIP	: BASE CLIP QUANTITY CONTROL FOR HORIZONTAL EDGE COMPENSATION SIGNAL
CP-IN-1	: CLAMP PULSE/BLANKING PULSE
CP-IN-2	: CLAMP PULSE FOR AGC CIRCUIT
DL-IN-1	: NON-INVERT INPUT FOR HORIZONTAL EDGE COMPENSATION DIFFERENTIAL AMPLIFIER
DL-IN-2	: INVERT INPUT FOR HORIZONTAL EDGE COMPENSATION DIFFERENTIAL AMPLIFIER
FB-AGC-B	: DC FEEDBACK FOR B-CH AGC
FB-AGC-G	: DC FEEDBACK FOR G-CH AGC
FB-AGC-R	: DC FEEDBACK FOR R-CH AGC
FB-KNEE-B	: DC FEEDBACK FOR B-CH KNEE
FB-KNEE-G	: DC FEEDBACK FOR G-CH KNEE
FB-KNEE-R	: DC FEEDBACK FOR R-CH KNEE
FB-VCA-EDGE	: CAPACITOR FOR DC FEEDBACK
FB-WB-B	: DC FEEDBACK FOR B-CH WHITE BALANCE
FB-WB-G	: DC FEEDBACK FOR G-CH WHITE BALANCE
FB-WB-R	: DC FEEDBACK FOR R-CH WHITE BALANCE
FB-Y-B	: DC FEEDBACK FOR B-CH Y
FB-Y-G	: DC FEEDBACK FOR G-CH Y
FB-Y-R	: DC FEEDBACK FOR R-CH Y
KNEE	: KNEE CONTROL
MTX-IN-B	: B-Y SIGNAL MATRIX INPUT
MTX-IN-R	: R-Y SIGNAL MATRIX INPUT
MTX-IN-YB	: B-Y SIGNAL MATRIX INPUT
MTX-IN-YEDGE	: LUMINANCE SIGNAL MATRIX FOR HORIZONTAL EDGE COMPENSATION
MTX-IN-YL	: LUMINANCE SIGNAL MATRIX
MTX-IN-YR	: R-Y SIGNAL MATRIX
PED-B	: PEDESTAL CONTROL FOR B-CH
PED-G	: PEDESTAL CONTROL FOR G-CH
PED-R	: PEDESTAL CONTROL FOR R-CH
Pre-KNEE-B	: Pre-KNEE CONTROL FOR B-CH
Pre-KNEE-G	: Pre-KNEE CONTROL FOR G-CH
Pre-KNEE-R	: Pre-KNEE CONTROL FOR R-CH
PROC-IN-B	: B-CH PROCESS
PROC-IN-G	: G-CH PROCESS
PROC-IN-R	: R-CH PROCESS
VCA-EDGE	: OUTPUT LEVEL CONTROL FOR HORIZONTAL EDGE COMPENSATED LUMINANCE SIGNAL
VCA-YH	: HORIZONTAL EDGE COMPENSATED OUTPUT LEVEL CONTROL
WB-B	: WHITE BALANCE CONTROL FOR B-CH
WB-G	: WHITE BALANCE CONTROL FOR G-CH
WB-R	: WHITE BALANCE CONTROL FOR R-CH
WCLIP	: WHITE CLIP LEVEL CONTROL
YEDGE IN	: LUMINANCE SIGNAL FOR HORIZONTAL EDGE COMPENSATION
YENC-IN	: LUMINANCE SIGNAL AMPLIFIER
YL-IN	: INPUT FOR LUMINANCE SIGNAL
Y	: Y CONTROL

OUTPUT	
AGC-DET-OUT	: AGC DETECT
AGC-OUT-B	: B-CH AGC
AGC-OUT-G	: G-CH AGC
AGC-OUT-R	: R-CH AGC
BIAS	: BIAS
DL-OUT	: HORIZONTAL EDGE COMPENSATION SIGNAL FOR LUMINANCE SIGNAL
PROC-OUT-B	: B-CH PROCESS
PROC-OUT-G	: G-CH PROCESS
PROC-OUT-R	: R-CH PROCESS
VREF (2.0V)	: VREF (2.0V)
YEDGE-OUT	: MATRIX OF LUMINANCE SIGNAL FOR HORIZONTAL EDGE COMPENSATION
YENC-OUT	: LUMINANCE SIGNAL AMPLIFIER
YH-OUT	: OUTPUT OF APERTURE COMPENSATION CIRCUIT
YL-OUT	: LUMINANCE SIGNAL MATRIX OUTPUT
(B-Y)-OUT	: B-Y SIGNAL MATRIX
(R-Y)-OUT	: R-Y SIGNAL MATRIX

UPC358G2 (NEC) FLAT PACKAGE
DUAL OPERATIONAL AMPLIFIERS
- TOP VIEW -



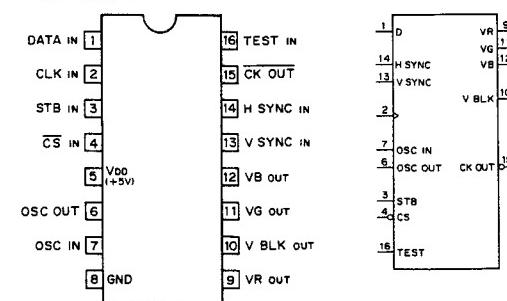
UPC4558G2 (NEC) FLAT PACKAGE
DUAL OPERATIONAL AMPLIFIER
- TOP VIEW -



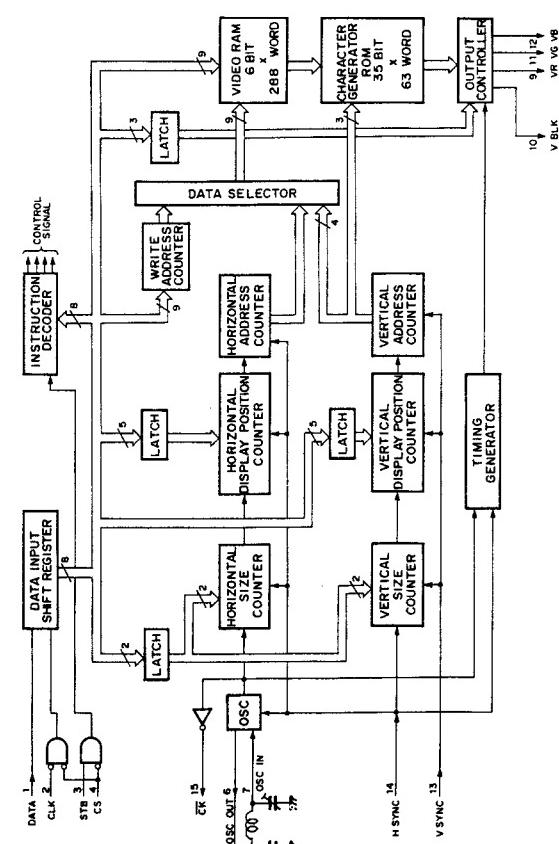
UPD6142G-101 (NEC) FLAT PACKAGE

C-MOS 8-BIT SERIAL INPUT CHARACTER DISPLAY

- TOP VIEW -

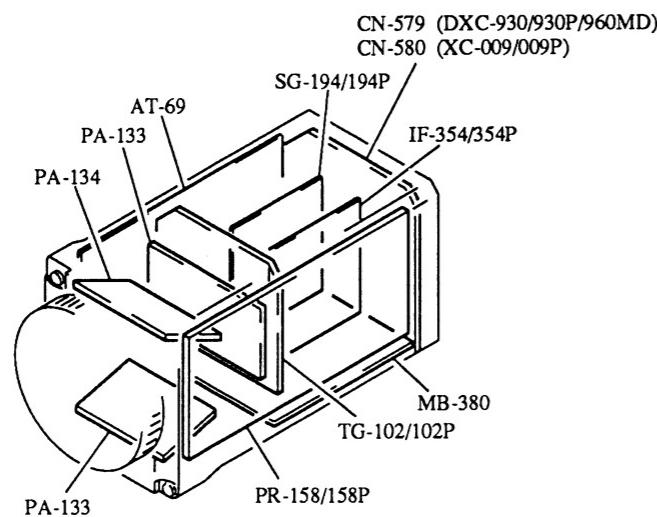


D; DATA INPUT
CK OUT; EQUAL TO OUTPUT OF OSC OUT
CLK; CLOCK INPUT
CS; CHIP SELECT INPUT
H SYNC; H SYNC INPUT
OSC IN, OUT; EXTERNAL TERMINAL FOR OSC
STB; STROBE INPUT
TEST; TEST CLOCK INPUT
VB; BLUE CHARACTER DATA OUTPUT
V BLK; V BLANKING OUTPUT
VG; GREEN CHARACTER DATA OUTPUT
VR; RED CHARACTER DATA OUTPUT
V SYNC; V SYNC INPUT



SECTION C
SCHEMATIC DIAGRAMS AND BOARD ILLUSTRATIONS

BOARD LAYOUT



1

2

3

4

5

DXC-930/930P
DXC-960MD
XC-009/009P

C-1

C-2

A

B

C

D

E

F

G

H

TG-102/102P BOARD

1

2

3

4

5

C-3

C-4

B

C

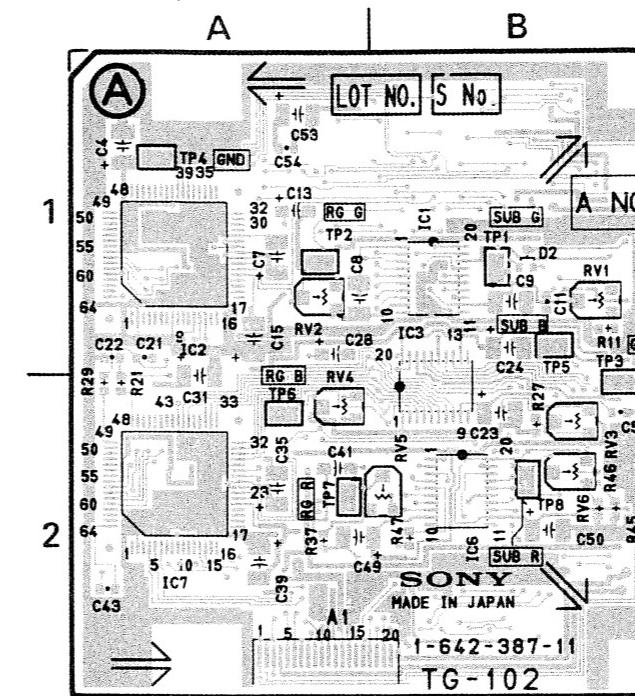
D

E

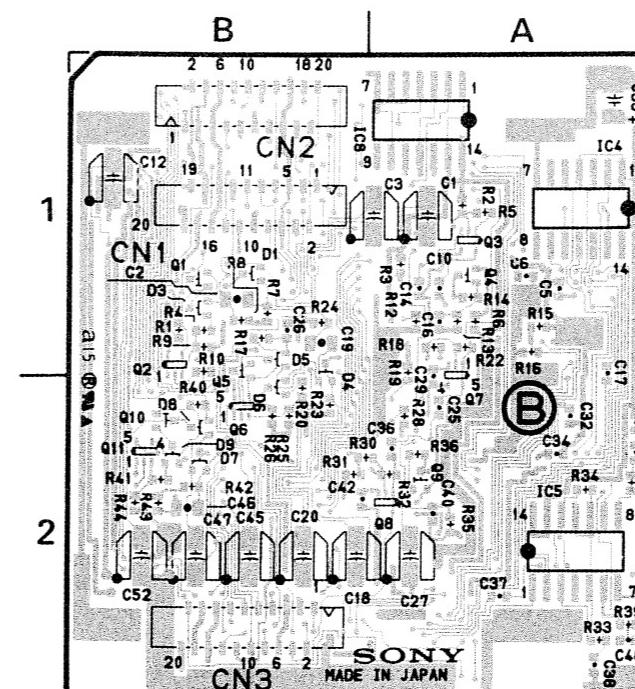
F

G

H



1-642-387-11, 12, 13 COMPONENT SIDE

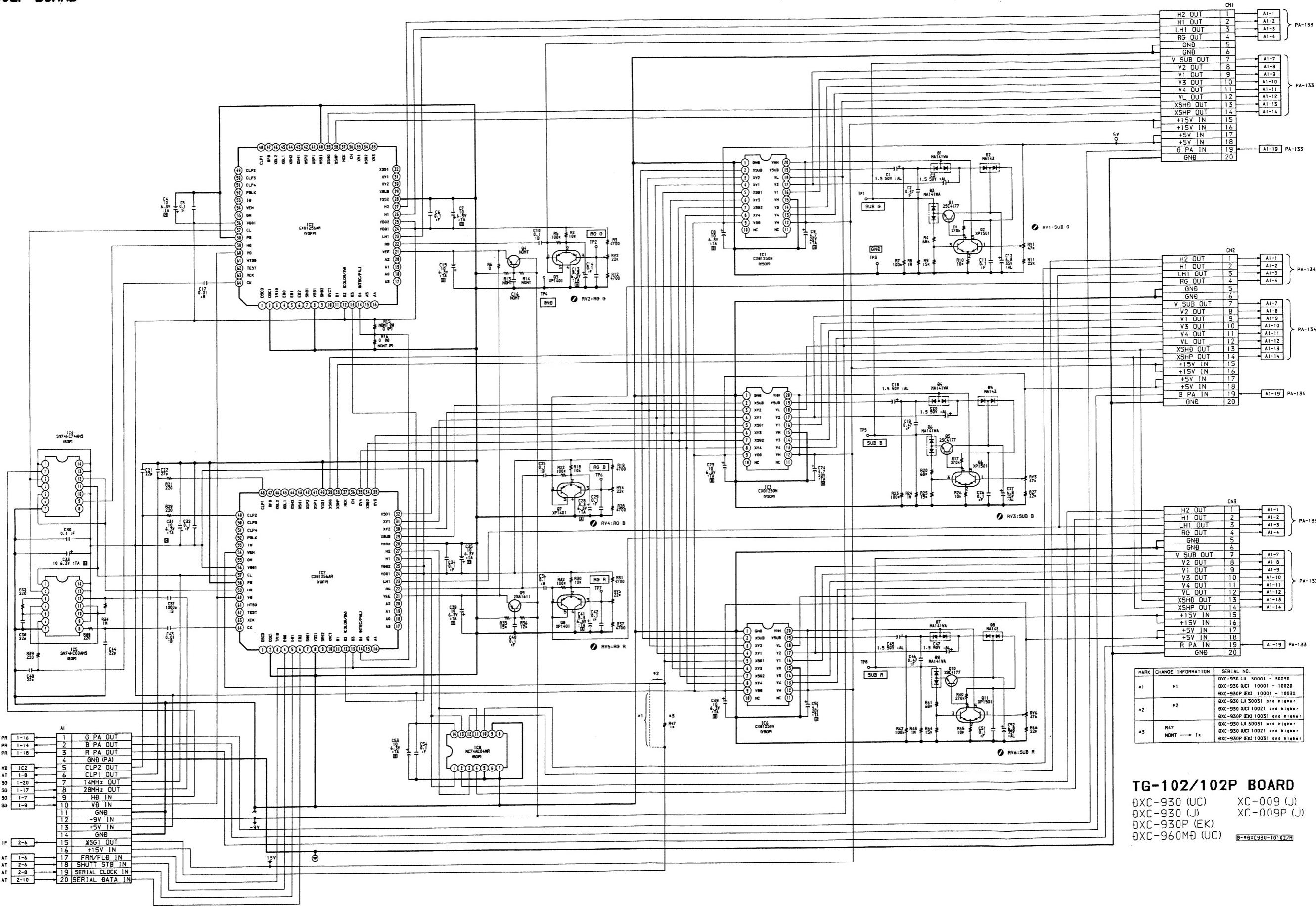


1-642-387-11, 12, 13 SOLDERING SIDE

TG-102/102P (1-642-387-11, 12, 13)

CN1	B-1
CN2	B-1
CN3	B-2
D1	B-1
D2	B-1
D3	B-1
D4	B-1
D5	B-1
D6	B-1
D7	B-2
D8	B-2
D9	B-2
IC1	B-1
IC2	A-1
IC3	B-1
IC4	A-1
IC5	A-2
IC6	B-2
IC7	A-2
IC8	A-1
Q1	B-1
Q2	B-1
Q3	A-1
Q5	B-1
Q6	B-2
Q7	A-1
Q8	A-2
Q9	A-2
Q10	B-2
Q11	B-2
RV1	B-1
RV2	A-1
RV3	B-2
RV4	A-2
RV5	B-2
RV6	B-2
TP1	B-1
TP2	A-1
TP3	B-2
TP4	A-1
TP5	B-1
TP6	A-2
TP7	A-2
TP8	B-2

TG-102/102P BOARD



DXC-930/930P
DXC-960MD
XC-009/009P

C-5

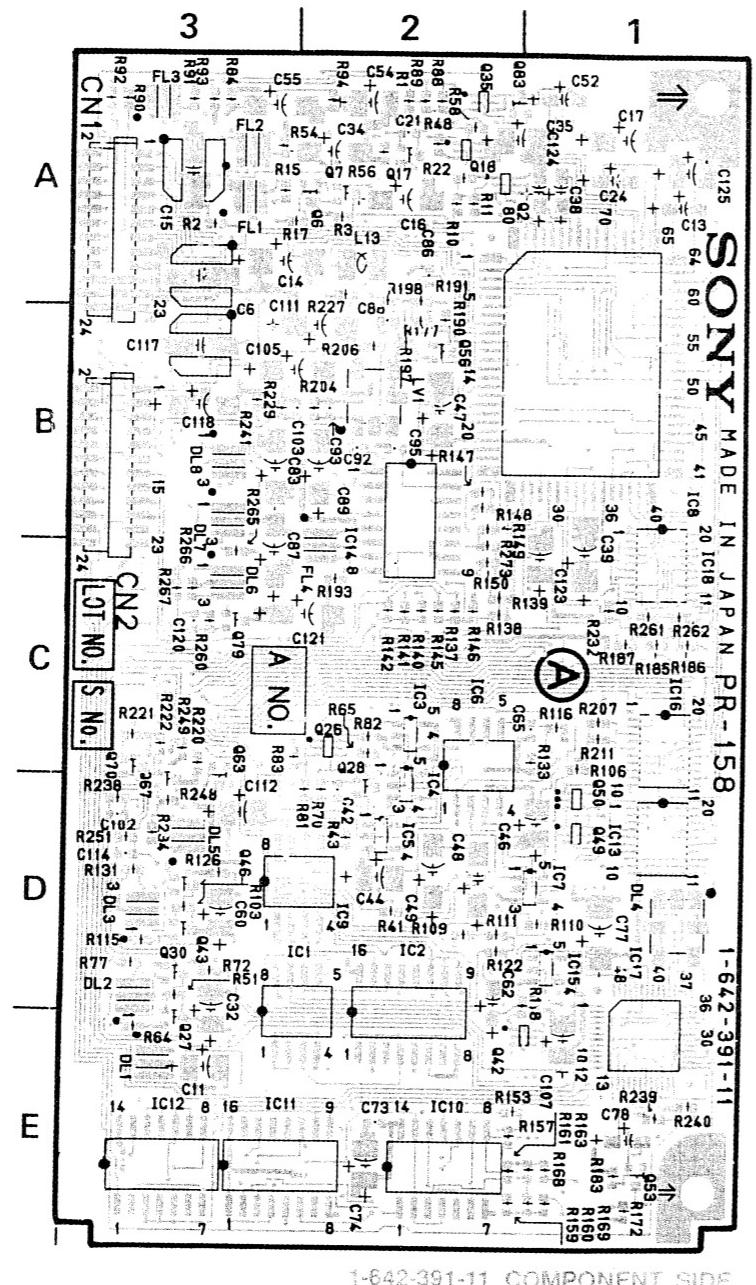
C

PR-158/158P BOARD

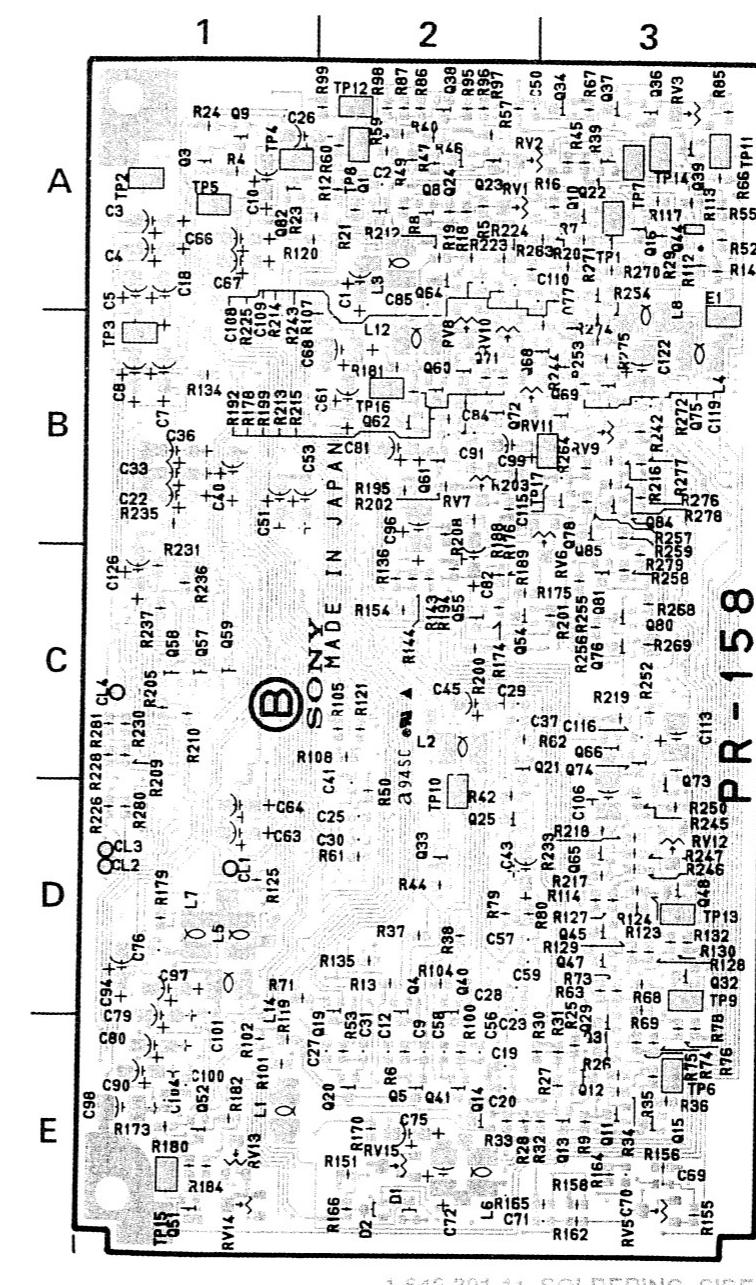
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 10001-10270 DXC-930 (UC)
 10001-10480 DXC-930P (EK)
 10001-10050 DXC-960MD (UC)
 10001-10170 XC-009 (J)
 10001-10060 XC-009P (EK)

PR-158/158P (1-642-391-11)

CN1	A-3	Q22	A-2	RV1	A-2
CN2	B-3	Q23	A-2	RV2	A-2
		Q24	A-2	RV3	A-3
DL1	D-3	Q25	C-2	RV5	D-3
DL2	D-3	Q26	C-2	RV6	B-2
DL3	D-3	Q27	D-3	RV7	B-2
DL4	D-1	Q28	C-2	RV8	A-2
DL5	C-3	Q29	D-2	RV9	A-2
DL6	B-2	Q30	D-3	RV10	A-2
DL7	B-2	Q31	D-2	RV11	A-2
DL8	B-2	Q32	D-3	RV12	C-3
D1	D-2	Q33	C-2	RV13	D-1
D2	D-2	Q34	A-2	RV14	D-1
E1	A-3	Q35	A-2	RV15	D-2
		Q36	A-3		
FL1	A-2	Q37	A-2	TP1	A-2
FL2	A-2	Q38	A-2	TP2	A-1
FL3	A-2	Q39	A-3	TP3	A-1
FL4	B-2	Q40	D-2	TP4	A-1
		Q41	D-2	TP5	A-1
		Q42	D-1	TP6	D-3
IC1	D-2	Q43	D-3	TP7	A-3
IC2	D-2	Q44	A-3	TP8	A-2
IC3	C-2	Q45	D-2	TP9	D-3
IC4	C-2	Q46	C-3	TP10	C-2
IC5	C-2	Q47	D-2	TP11	A-3
IC6	C-2	Q48	C-3	TP12	A-2
IC7	C-1	Q49	C-1	TP13	D-3
IC8	B-1	Q50	C-1	TP14	A-3
IC9	C-2	Q51	D-1	TP15	D-1
IC10	D-2	Q52	D-1	TP16	A-2
IC11	D-2	Q53	D-1	TP17	B-2
IC12	D-3	Q54	B-2		
IC13	C-1	Q55	B-2		
IC14	B-2	Q56	A-2		
IC15	D-1	Q57	B-1		
IC16	C-1	Q58	B-1		
IC17	D-1	Q59	B-1		
IC18	B-1	Q60	A-2		
		Q61	B-2		
LV1	A-2	Q62	A-2		
		Q63	C-3		
Q1	A-2	Q64	A-2		
Q2	A-2	Q65	C-2		
Q3	A-1	Q66	C-2		
Q4	D-2	Q67	C-3		
Q5	D-2	Q68	A-2		
Q6	A-2	Q69	B-2		
Q7	A-2	Q70	C-3		
Q8	A-2	Q71	A-2		
Q9	A-1	Q72	B-2		
Q10	A-2	Q73	D-3		
Q11	D-3	Q74	C-3		
Q12	D-2	Q75	A-2		
Q13	D-2	Q76	B-3		
Q14	D-2	Q77	A-2		
Q15	D-3	Q78	B-2		
Q16	A-3	Q79	B-2		
Q17	A-2	Q80	B-3		
Q18	A-2	Q81	B-2		
Q19	D-2	Q82	A-1		
Q20	D-2	Q83	A-1		
Q21	C-2	Q84	B-2		
		Q85	B-2		



C-7 (a)



C-8 (a)

CN1	A-3	Q22	A-2	RV1	A-2
CN2	B-3	Q23	A-2	RV2	A-3
		Q24	A-2	RV3	D-3
DL1	D-3	Q25	C-2	RV5	B-2
DL2	D-3	Q26	C-2	RV6	B-2
DL3	D-3	Q27	D-3	RV7	B-2
DL4	D-1	Q28	C-2	RV8	A-2
DL5	C-3	Q29	D-2	RV9	A-2
DL6	B-2	Q30	D-3	RV10	A-2
DL7	B-2	Q31	D-2	RV11	A-2
DL8	B-2	Q32	D-3	RV12	C-3
D1	D-2	Q33	C-2	RV13	D-1
D2	D-2	Q34	A-2	RV14	D-1
E1	A-3	Q35	A-2	RV15	D-2
		Q36	A-3	RV16	D-2
FL1	A-2	Q37	A-2	TP1	A-2
FL2	A-2	Q38	A-2	TP2	A-1
FL3	A-2	Q39	A-3	TP3	A-1
FL4	B-2	Q40	D-2	TP4	A-1
		Q41	D-2	TP5	A-1
		Q42	D-1	TP6	D-3
IC1	D-2	Q43	D-3	TP7	A-3
IC2	D-2	Q44	A-3	TP8	A-2
IC3	C-2	Q45	D-2	TP9	D-3
IC4	C-2	Q46	C-3	TP10	C-2
IC5	C-2	Q47	D-2	TP11	A-3
IC6	C-2	Q48	C-3	TP12	A-2
IC7	C-1	Q49	C-1	TP13	D-3
IC8	B-1	Q50	C-1	TP14	A-3
IC9	C-2	Q51	D-1	TP15	D-1
IC10	D-2	Q52	D-1	TP16	A-2
IC11	D-2	Q53	D-1	TP17	B-2
IC12	D-3	Q54	B-2		
IC13	C-1	Q55	B-2		
IC14	B-2	Q56	A-2		
IC15	D-1	Q57	B-1		
IC16	C-1	Q58	B-1		
IC17	D-1	Q59	B-1		
IC18	B-1	Q60	A-2		
LV1	A-2	Q61	B-2		
		Q62	A-2		
Q1	A-2	Q63	C-3		
Q2	A-2	Q64	A-2		
Q3	A-2	Q65	C-2		
Q4	A-1	Q66	C-2		
Q5	D-2	Q67	C-3		
Q6	D-2	Q68	A-2		
Q7	A-2	Q69	B-2		
Q8	A-2	Q70	C-3		
Q9	A-1	Q71	A-2		
Q10	A-2	Q72	B-2		
Q11	D-3	Q73	D-3		
Q12	D-2	Q74	C-3		
Q13	D-2	Q75	A-2		
Q14	D-2	Q76	B-3		
Q15	D-3	Q77	A-2		
Q16	A-3	Q78	B-2		
Q17	A-2	Q79	B-2		
Q18	A-2	Q80	B-3		
Q19	D-2	Q81	B-2		
Q20	D-2	Q82	A-1		
Q21	C-2	Q83	A-1		
		Q84	B-2		
		Q85	B-2		

PR-158/158P BOARD

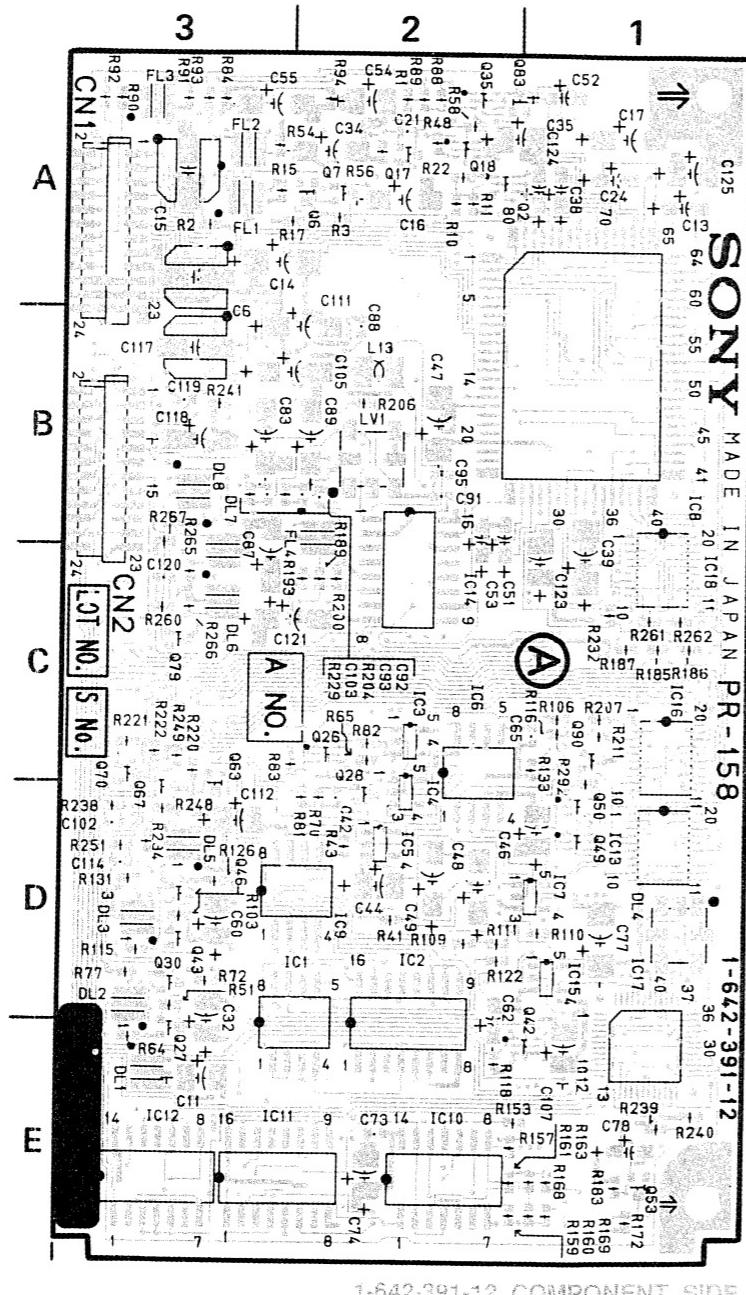
Serial No. 30281-30480 DXC-930 (J)
 10271-10570 DXC-930 (UC)
 10481-10980 DXC-930P (EK)
 10051-10250 DXC-960MD (UC)
 10171-10320 XC-009 (J)
 10061-10110 XC-009P (EK)

PR-158/158P

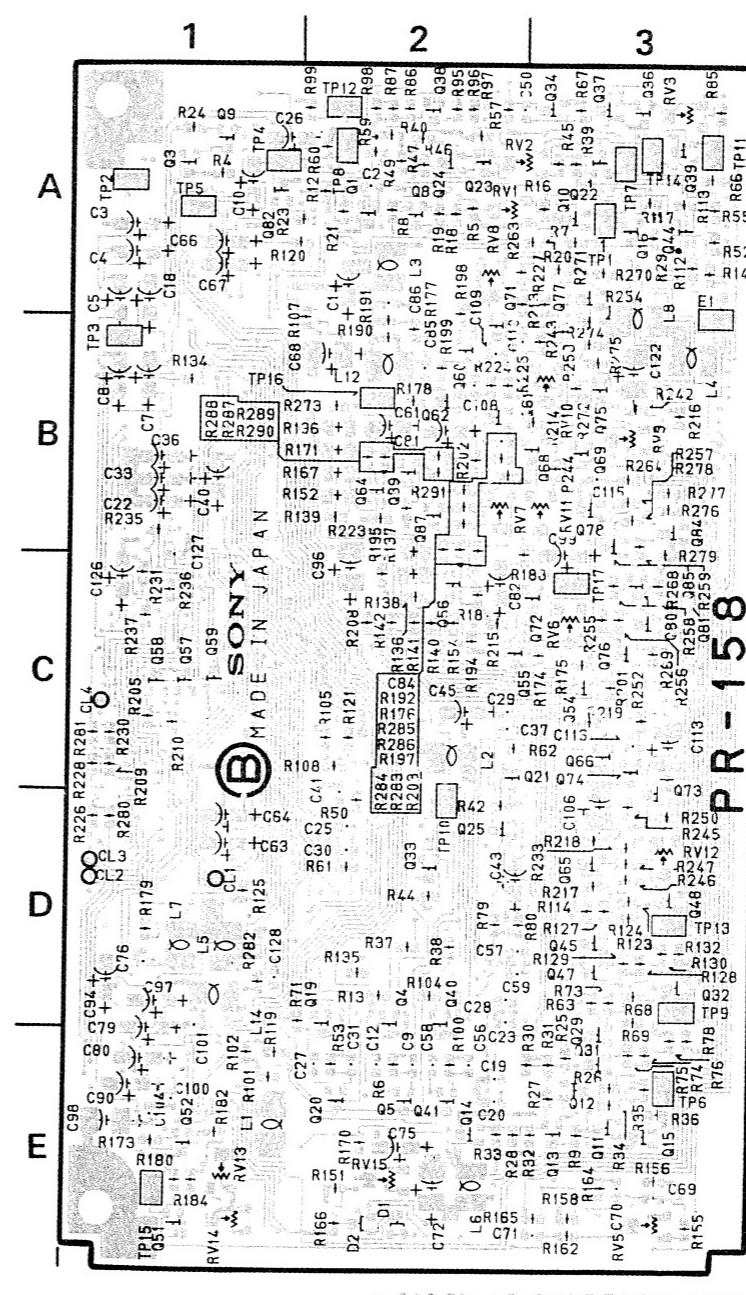
PR-158/158P

PR-158/158P (1-642-391-12)

CN1	A-3	Q22	A-2	Q87	B-2
CN2	B-3	Q23	A-2	Q89	B-2
Q24	A-2	Q24	A-2	Q90	C-1
DL1	E-3	Q25	C-2	RV1	A-2
DL2	D-3	Q26	C-2	RV2	A-2
DL3	D-3	Q27	D-3	RV3	A-3
DL4	D-1	Q28	C-2	RV5	D-3
DL5	D-3	Q29	D-2	RV6	B-2
DL6	C-3	Q30	D-3	RV7	B-2
DL7	C-3	Q31	D-2	RV8	A-2
DL8	B-3	Q32	D-3	RV9	A-2
D1	D-2	Q34	A-2	RV10	B-3
D2	D-2	Q35	A-2	RV11	A-2
E1	A-3	Q36	A-3	RV12	C-3
FL1	A-3	Q37	A-2	RV13	D-1
FL2	A-3	Q38	A-2	RV14	D-1
FL3	A-3	Q39	A-3	RV15	D-2
FL4	B-2	TP1	A-2		
IC1	D-2	Q40	D-2	TP2	A-1
IC2	D-2	Q41	D-1	TP3	A-1
IC3	C-2	Q42	D-2	TP4	A-1
IC4	C-2	Q43	D-3	TP5	A-1
IC5	D-2	Q44	A-3	TP6	D-3
IC6	C-2	Q45	D-2	TP7	A-3
IC7	D-1	Q46	C-3	TP8	A-2
IC8	B-1	Q47	D-2	TP9	D-3
IC9	C-2	Q48	D-2	TP10	C-2
IC10	E-2	Q49	C-1	TP11	A-3
IC11	E-3	Q50	C-1	TP12	A-2
IC12	E-3	Q51	D-1	TP13	D-3
IC13	D-1	Q52	D-1	TP14	A-3
IC14	C-2	Q53	D-1	TP15	D-1
IC15	D-1	Q54	B-2	TP16	A-2
IC16	C-1	Q55	B-2	TP17	B-2
IC17	D-1	Q56	C-2		
IC18	C-1	Q57	B-1		
LV1	B-2	Q58	B-1		
		Q59	B-1		
		Q60	A-2		
		Q61	B-2		
		Q62	A-2		
		Q63	C-3		
		Q64	B-2		
Q1	A-2	Q65	C-2		
Q2	A-2	Q66	C-2		
Q3	A-1	Q67	C-3		
Q4	D-2	Q68	A-2		
Q5	D-2	Q69	B-2		
Q6	A-2	Q70	C-3		
Q7	A-2	Q71	A-2		
Q8	A-2	Q72	B-2		
Q9	A-1	Q73	D-3		
Q10	A-2	Q74	C-3		
Q11	D-3	Q75	A-2		
Q12	D-2	Q76	B-3		
Q13	D-2	Q77	A-2		
Q14	D-2	Q78	B-2		
Q15	D-3	Q79	B-2		
Q16	A-3	Q80	B-3		
Q17	A-2	Q81	B-2		
Q18	A-2	Q82	A-1		
Q19	D-2	Q83	A-1		
Q20	D-2	Q84	B-2		
Q21	C-2	Q85	B-2		



C-7 (b)



C-8 (b)

PR-158/158P (1-642-391-12)

CN1	A-3	Q22	A-2	Q87	B-2
CN2	B-3	Q23	A-2	Q89	B-2
Q24	A-2	Q24	A-2	Q90	C-1
DL1	E-3	Q25	C-2	RV1	A-2
DL2	D-3	Q26	C-2	RV2	A-2
DL3	D-3	Q27	D-3	RV3	A-3
DL4	D-1	Q28	C-2	RV5	D-3
DL5	D-3	Q29	D-2	RV6	B-2
DL6	C-3	Q30	D-3	RV7	B-2
DL7	C-3	Q31	D-2	RV8	A-2
DL8	B-3	Q32	D-3	RV9	A-2
D1	D-2	Q34	A-2	RV10	B-3
D2	D-2	Q35	A-2	RV11	A-2
E1	A-3	Q36	A-3	RV12	C-3
FL1	A-3	Q37	A-2	RV13	D-1
FL2	A-3	Q38	A-2	RV14	D-1
FL3	A-3	Q39	A-3	RV15	D-2
FL4	B-2	TP1	A-2	TP1	A-2
IC1	D-2	Q40	D-2	TP2	A-1
IC2	D-2	Q41	D-1	TP3	A-1
IC3	C-2	Q42	D-2	TP4	A-1
IC4	C-2	Q43	D-3	TP5	A-1
IC5	D-2	Q44	A-3	TP6	D-3
IC6	C-2	Q45	D-2	TP7	A-3
IC7	D-1	Q46	C-3	TP8	D-3
IC8	B-1	Q47	D-2	TP9	A-3
IC9	C-2	Q48	D-2	TP10	C-2
IC10	E-2	Q49	D-1	TP11	A-3
IC11	E-3	Q50	C-1	TP12	A-2
IC12	E-3	Q51	D-1	TP13	D-3
IC13	D-1	Q52	D-1	TP14	A-3
IC14	C-2	Q53	C-2	TP15	D-3
IC15	D-1	Q54	B-1	TP16	A-2
IC16	C-1	Q55	B-1	TP17	B-2
IC17	D-1	Q56	B-1	TP18	C-2
IC18	C-1	Q57	B-1	TP19	C-3
LV1	B-2	Q58	B-1	TP20	C-3
		Q59	B-1	TP21	C-3
		Q60	A-2	TP22	C-3
		Q61	B-2	TP23	C-3
Q1	A-2	Q62	A-2	TP24	C-3
Q2	A-2	Q63	C-3	TP25	C-3
Q3	A-1	Q64	B-2	TP26	C-3
Q4	D-2	Q65	C-2	TP27	C-3
Q5	D-2	Q66	C-2	TP28	C-3
Q6	A-2	Q67	C-3	TP29	C-3
Q7	A-2	Q68	A-2	TP30	C-3
Q8	A-2	Q69	B-2	TP31	C-3
Q9	A-1	Q70	C-3	TP32	C-3
Q10	A-2	Q71	A-2	TP33	C-3
Q11	D-3	Q72	B-2	TP34	C-3
Q12	D-2	Q73	D-3	TP35	C-3
Q13	D-2	Q74	C-3	TP36	C-3
Q14	D-2	Q75	A-2	TP37	C-3
Q15	D-3	Q76	B-3	TP38	C-3
Q16	A-3	Q77	A-2	TP39	C-3
Q17	A-2	Q78	B-2	TP40	C-3
Q18	A-2	Q79	B-2	TP41	C-3
Q19	D-2	Q80	B-3	TP42	C-3
Q20	D-2	Q81	B-2	TP43	C-3
Q21	C-2	Q82	A-1	TP44	C-3
		Q83	A-1	TP45	C-3
		Q84	B-2	TP46	C-3
		Q85	B-2	TP47	C-3
		Q86	B-2	TP48	C-3
		Q87	B-2	TP49	C-3
		Q88	B-2	TP50	C-3
		Q89	B-2	TP51	C-3
		Q90	C-1	TP52	C-3
		Q91	C-1	TP53	C-3
		Q92	C-1	TP54	C-3
		Q93	C-1	TP55	C-3
		Q94	C-1	TP56	C-3
		Q95	C-1	TP57	C-3
		Q96	C-1	TP58	C-3
		Q97	C-1	TP59	C-3
		Q98	C-1	TP60	C-3
		Q99	C-1	TP61	C-3

PR-158/158P BOARD

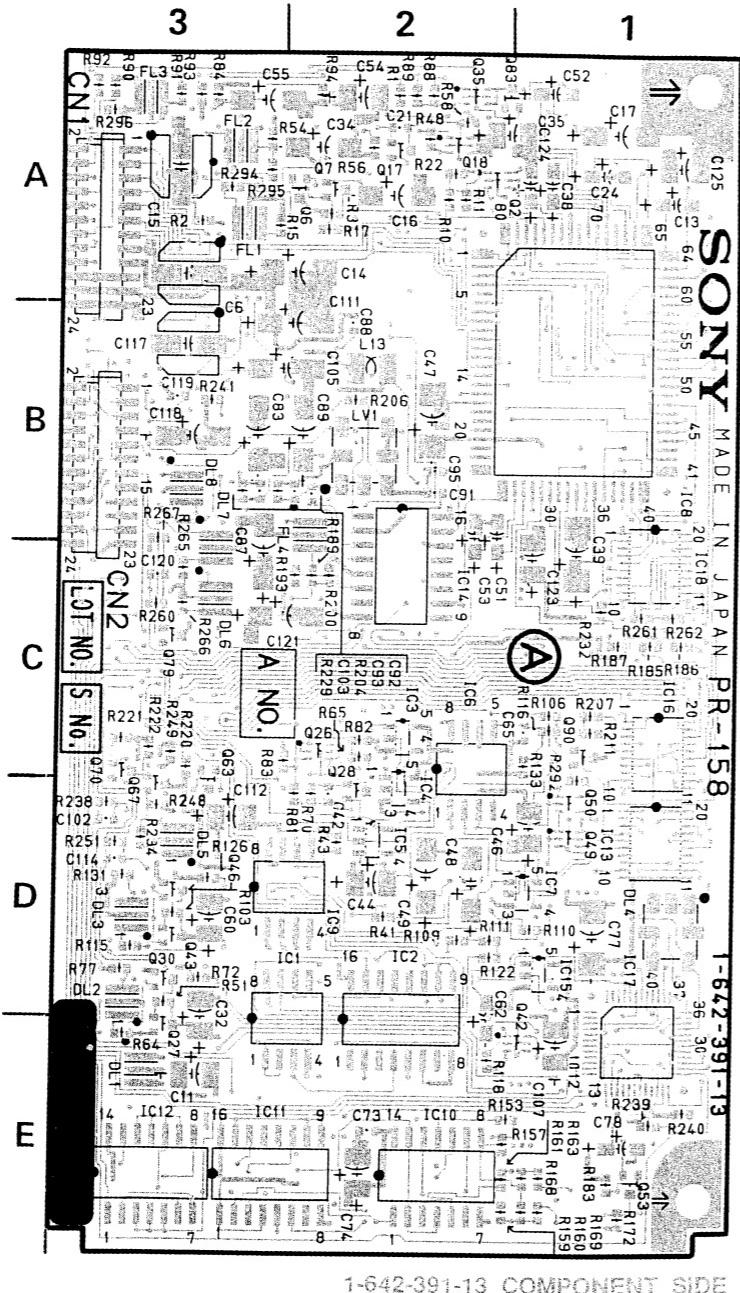
Serial No.	30481-	DXC-930 (J)
	10571-	DXC-930 (UC)
	10981-	DXC-930P (EK)
	50001-	DXC-930P (UC)
	10251-	DXC-960MD (UC)
	10321-	XC-009 (J)
	10111-	XC-009P (EK)

PR-158/158P

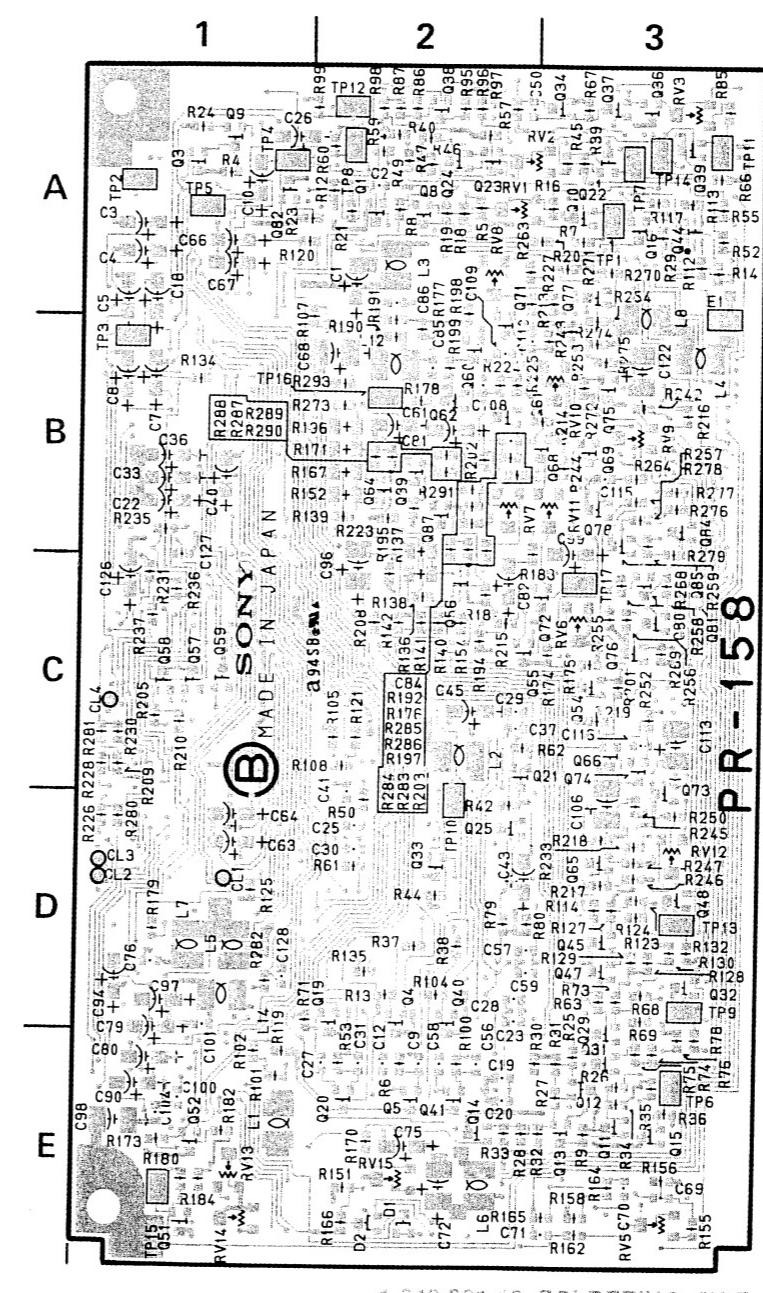
PR-158/158P

PR-158/158P (1-642-391-13)

CN1	A-3	Q22	A-2	Q87	B-2
CN2	B-3	Q23	A-2	Q89	B-2
		Q24	A-2	Q90	C-1
DL1	E-3	Q25	C-2	RV1	A-2
DL2	D-3	Q26	C-2	RV2	A-2
DL3	D-3	Q27	D-3	RV3	A-3
DL4	D-1	Q28	C-2	RV5	D-3
DL5	D-3	Q29	D-2	RV6	B-2
DL6	C-3	Q30	D-3	RV7	B-2
DL7	C-3	Q31	D-2	RV8	A-2
DL8	B-3	Q32	D-3	RV9	A-2
D1	D-2	Q34	A-2	RV10	B-3
D2	D-2	Q35	A-2	RV11	A-2
E1	A-3	Q36	A-3	RV12	C-3
FL1	A-3	Q38	A-2	RV13	D-1
FL2	A-3	Q39	A-3	RV14	D-1
FL3	A-3	Q40	D-2	RV15	D-2
FL4	B-2	Q42	D-1	TP1	A-2
IC1	D-2	Q44	A-3	TP2	A-1
IC2	D-2	Q45	D-2	TP3	A-1
IC3	C-2	Q46	C-3	TP4	A-1
IC4	C-2	Q47	D-2	TP5	A-1
IC5	D-2	Q48	C-3	TP6	D-3
IC6	C-2	Q49	C-1	TP7	A-3
IC7	D-1	Q50	C-1	TP8	A-2
IC8	B-1	Q51	D-1	TP9	D-3
IC9	C-2	Q52	D-1	TP10	C-2
IC10	E-2	Q53	D-1	TP11	A-3
IC11	E-3	Q54	B-2	TP12	A-2
IC12	E-3	Q55	B-2	TP13	D-3
IC13	D-1	Q56	C-2	TP14	A-3
IC14	C-2	Q57	B-1	TP15	D-1
IC15	D-1	Q58	B-1	TP16	A-2
IC16	C-1	Q59	B-1	TP17	B-2
IC17	D-1	Q60	A-2		
IC18	C-1	Q61	B-2		
LV1	B-2	Q62	A-2		
		Q63	C-3		
		Q64	B-2		
Q1	A-2	Q65	C-2		
Q2	A-2	Q66	C-2		
Q3	A-1	Q67	C-3		
Q4	D-2	Q68	A-2		
Q5	D-2	Q69	B-2		
Q6	A-2	Q70	C-3		
Q7	A-2	Q71	A-2		
Q8	A-2	Q72	B-2		
Q9	A-1	Q73	D-3		
Q10	A-2	Q74	C-3		
Q11	D-3	Q75	A-2		
Q12	D-2	Q76	B-3		
Q13	D-2	Q77	A-2		
Q14	D-2	Q78	B-2		
Q15	D-3	Q79	B-2		
Q16	A-3	Q80	B-3		
Q17	A-2	Q81	B-2		
Q18	A-2	Q82	A-1		
Q19	D-2	Q83	A-1		
Q20	D-2	Q84	B-2		
Q21	C-2	Q85	B-2		



C-7 (c)



C-8 (c)

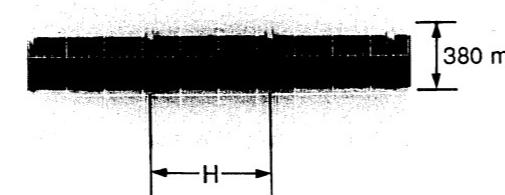
CN1	A-3	Q22	A-2	Q87	B-2
CN2	B-3	Q23	A-2	Q89	B-2
		Q24	A-2	Q90	C-1
DL1	E-3	Q25	C-2	RV1	A-2
DL2	D-3	Q26	C-2	RV2	A-2
DL3	D-3	Q27	D-3	RV3	A-3
DL4	D-1	Q28	C-2	RV5	D-3
DL5	D-3	Q29	D-2	RV6	B-2
DL6	C-3	Q30	D-3	RV7	B-2
DL7	C-3	Q31	D-2	RV8	A-2
DL8	B-3	Q32	D-3	RV9	A-2
D1	D-2	Q34	A-2	RV10	B-3
D2	D-2	Q35	A-2	RV11	A-2
E1	A-3	Q36	A-3	RV12	C-3
FL1	A-3	Q38	A-2	RV13	D-1
FL2	A-3	Q39	A-3	RV14	D-1
FL3	A-3	Q40	D-2	RV15	D-2
FL4	B-2	Q42	D-1	TP1	A-2
IC1	D-2	Q44	A-3	TP2	A-1
IC2	D-2	Q45	D-2	TP3	A-1
IC3	C-2	Q46	C-3	TP4	A-1
IC4	C-2	Q47	D-2	TP5	A-1
IC5	D-2	Q48	C-3	TP6	D-3
IC6	C-2	Q49	C-1	TP7	A-3
IC7	D-1	Q50	C-1	TP8	A-2
IC8	B-1	Q51	D-1	TP9	D-3
IC9	C-2	Q52	D-1	TP10	C-2
IC10	E-2	Q53	D-1	TP11	A-3
IC11	E-3	Q54	B-2	TP12	A-2
IC12	E-3	Q55	B-2	TP13	D-3
IC13	D-1	Q56	C-2	TP14	A-3
IC14	C-2	Q57	B-1	TP15	D-1
IC15	D-1	Q58	B-1	TP16	A-2
IC16	C-1	Q59	B-1	TP17	B-2
IC17	D-1	Q60	A-2		
IC18	C-1	Q61	B-2		
LV1	B-2	Q62	A-2		
		Q63	C-3		
		Q64	B-2		
Q1	A-2	Q65	C-2		
Q2	A-2	Q66	C-2		
Q3	A-1	Q67	C-3		
Q4	D-2	Q68	A-2		
Q5	D-2	Q69	B-2		
Q6	A-2	Q70	C-3		
Q7	A-2	Q71	A-2		
Q8	A-2	Q72	B-2		
Q9	A-1	Q73	D-3		
Q10	A-2	Q74	C-3		
Q11	D-3	Q75	A-2		
Q12	D-2	Q76	B-3		
Q13	D-2	Q77	A-2		
Q14	D-2	Q78	B-2		
Q15	D-3	Q79	B-2		
Q16	A-3	Q80	B-3		
Q17	A-2	Q81	B-2		
Q18	A-2	Q82	A-1		
Q19	D-2	Q83	A-1		
Q20	D-2	Q84	B-2		
Q21	C-2	Q85	B-2		

DXC-930/930P
DXC-960MD
XC-009/009P

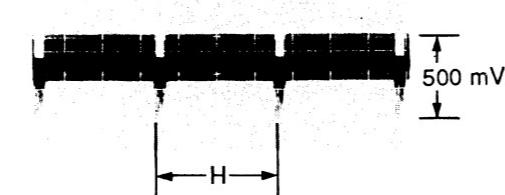
PR-158/158P BOARD**NOTE:**

- All voltage are DC, measured with a digital voltmeter.
- DC 電圧はデジタル電圧計による値
- DISPLAY/BARS bottom → "BARS"
- GAIN :00DB
- C. TEMP :3200K
- WHT. BAL :AUTO
- R GAIN :+00
- B GAIN :+00
- CCD IRIS :OFF
- SHUTTER :OFF

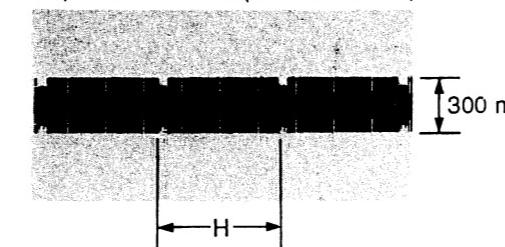
PR, CN1-18 R PA (LENS: CLOSE)



PR, CN1-16 G PA (LENS: CLOSE)



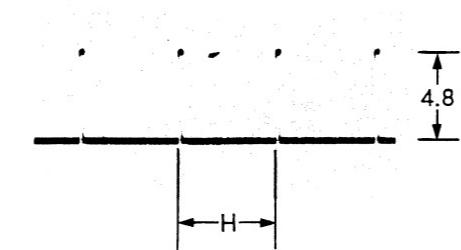
PR, CN1-14 B PA (LENS: CLOSE)



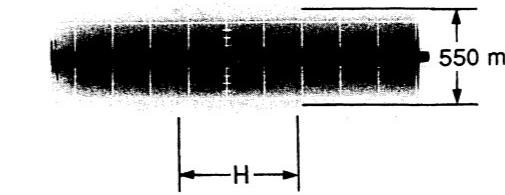
PR, CN2-20 SC



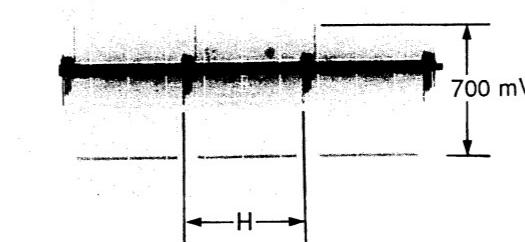
PR, CN2-16 BF



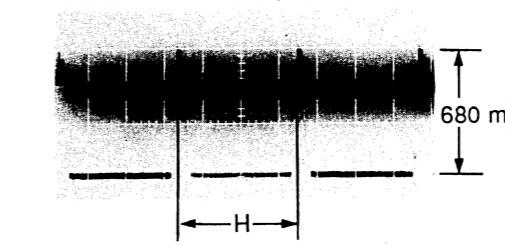
PR, CN2-14 L ALT



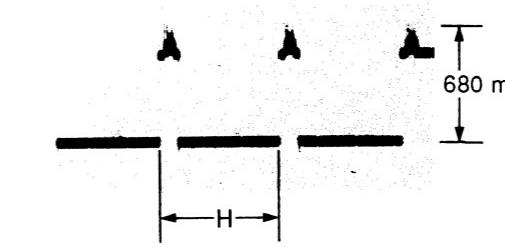
PR, TP4 R VIDEO (LENS: CLOSE)



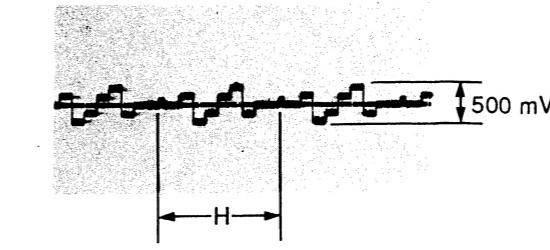
PR, TP8 G VIDEO (LENS: CLOSE)



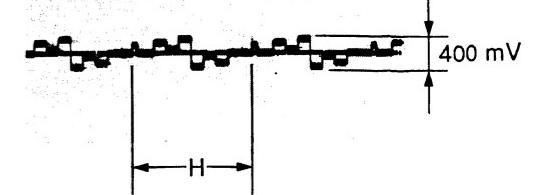
PR, TP12 B VIDEO (LENS: CLOSE)



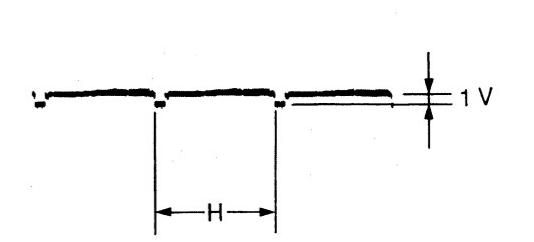
PR, TP16 R-Y



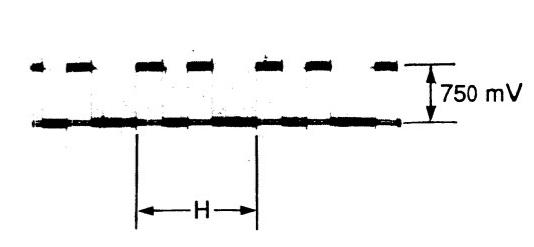
PR, TP17 B-Y



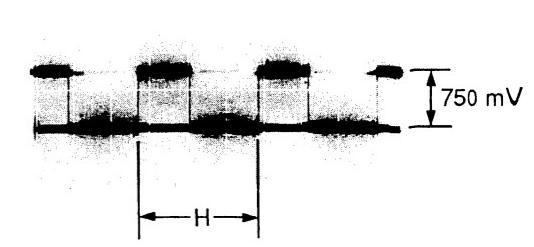
PR, CN1-9



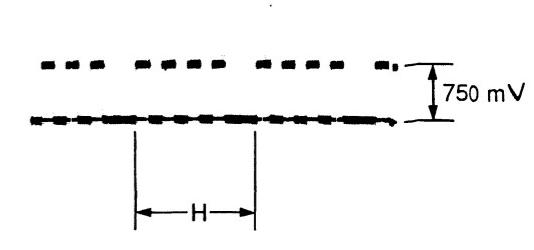
PR, TP6 R PR



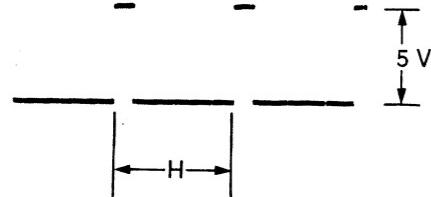
PR, TP9 G PR



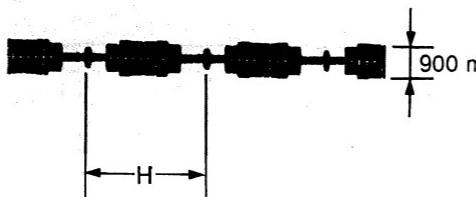
PR, TP13 B PR



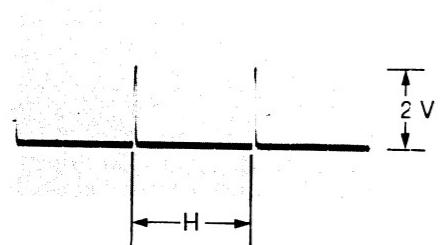
PR, CN1-2 CLP4



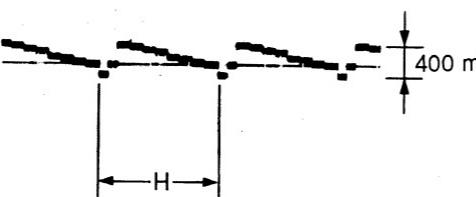
PR, CN2-13 CHROMA



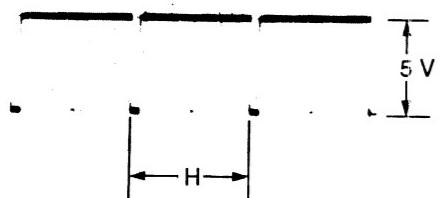
PR, CN1-13 CLP3



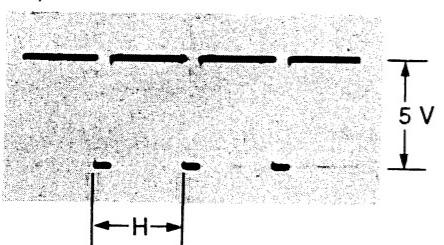
PR, CN2-15 Y



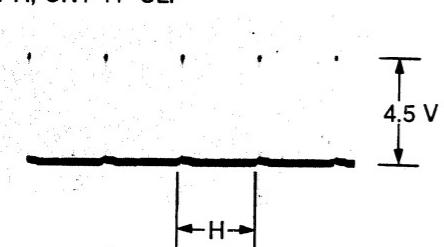
PR, CN2-24 SYNC



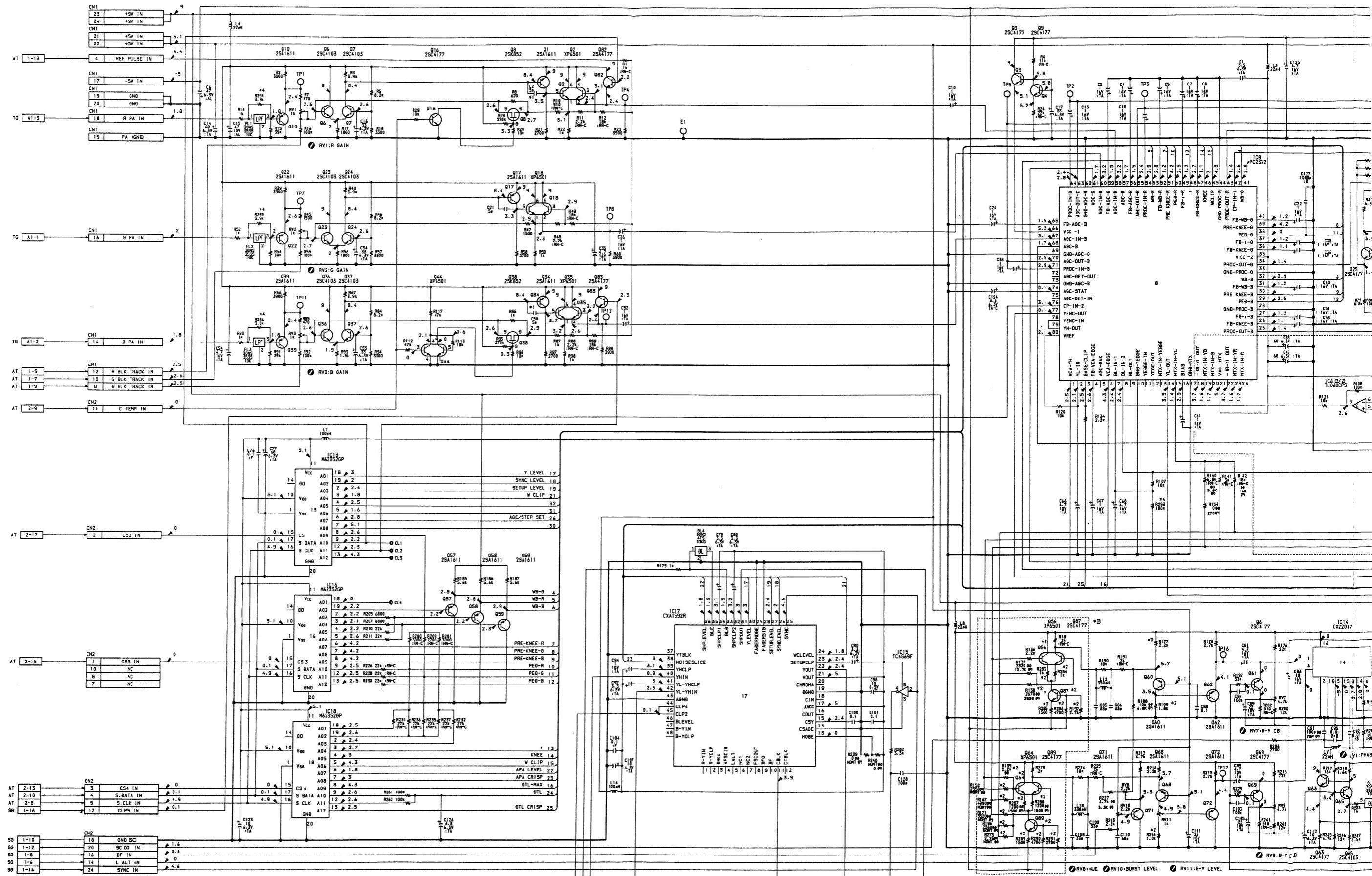
PR, CN2-22 BLKG

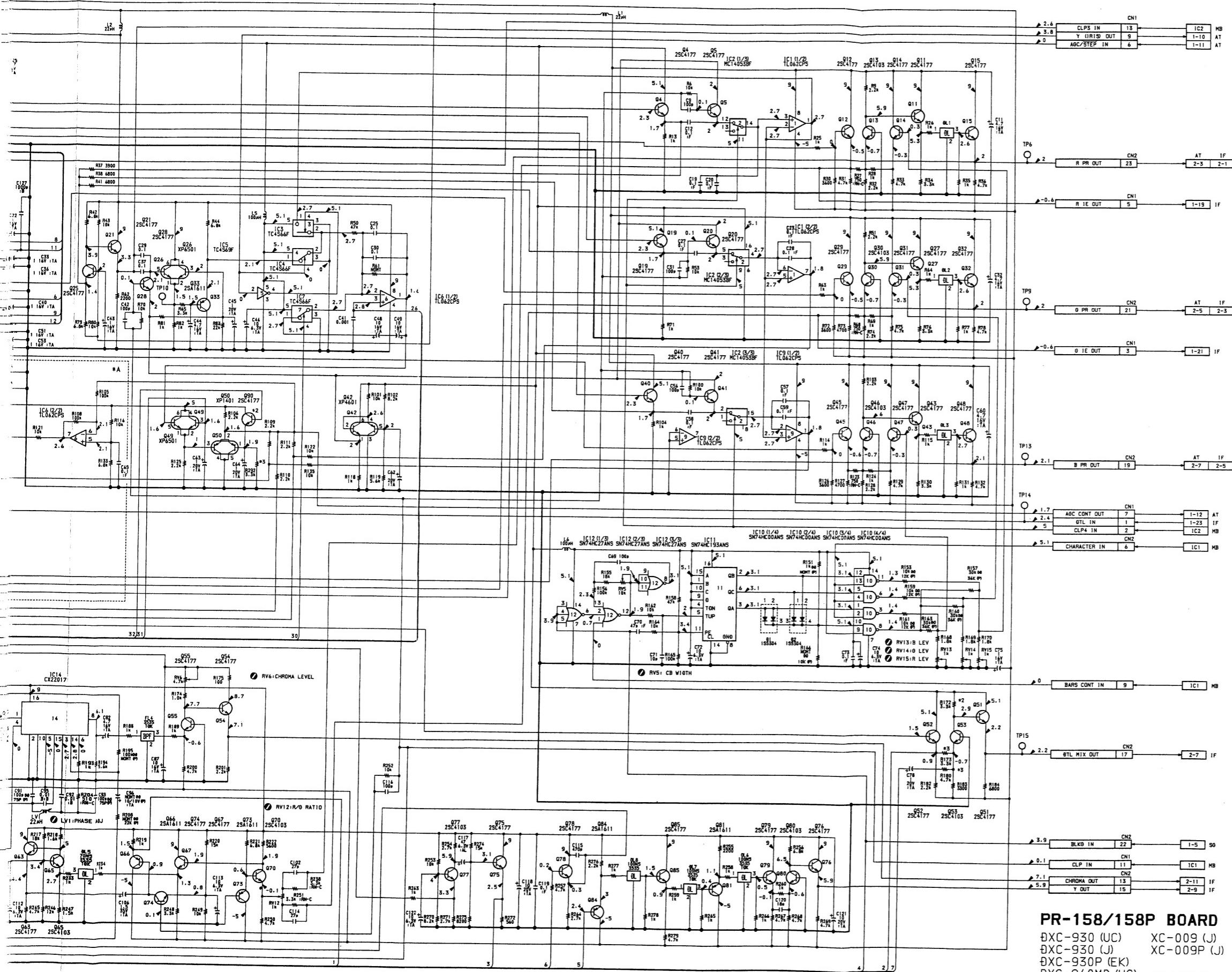


PR, CN1-11 CLP



PR-158/158P BOARD





PR-158/158P BOARD

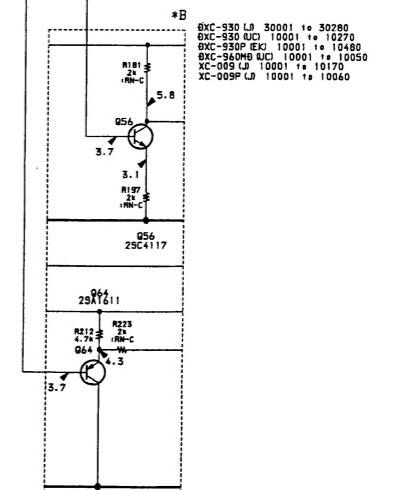
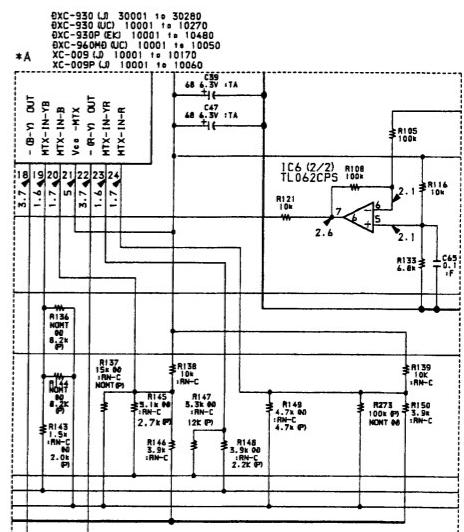
DXC-930 (UC)
DXC-930 (J)
DXC-930P (EK)
DXC-960MD (UC)

XC-009 (J)

XC-009P (J)

B-V0X930-PR158P

# NOTE		MARK	CHANGE INFO.	SERIAL NO.
#1				DXC-930 (J) 30281 and higher DXC-930 (UC) 10071 and higher DXC-930P (EK) 10131 and higher DXC-960MD (UC) 10051 and higher XC-009 (J) 10071 and higher XC-009P (J) 10001 and higher
#2	A001: Q07, Q08, Q09, R196 R283, R284, R285 R285, R286, R287 R136: 00 2.2K → 4.7K R137: 00 2.2K → 2.2K R138: 00 10K → 2470 R139: 00 10K → 2.2K R140: 00 10K → 2.7K R141: 00 10K → BELETEO R214: 00 2.2K → 2.2K R273: 00 10K → 2.2K Q254177 → XP450 Q254111 → XP4501	A001: Q07, Q08, Q09, R196 R283, R284, R285 R285, R286, R287 R136: 00 2.2K → 4.7K R137: 00 2.2K → 2.2K R138: 00 10K → 2470 R139: 00 10K → 2.2K R140: 00 10K → 2.7K R141: 00 10K → BELETEO R214: 00 2.2K → 2.2K R273: 00 10K → 2.2K Q254177 → XP450 Q254111 → XP4501	DXC-930 (J) 30281 and higher DXC-930 (UC) 10271 and higher DXC-930P (EK) 10481 and higher DXC-960MD (UC) 10051 and higher XC-009 (J) 10171 and higher XC-009P (J) 10061 and higher	
#3	R173: 5.6K → 3.3K R174: 2.2K → 4.7K R180: 2.2K → 4.7K R292 ABE00	R173: 5.6K → 3.3K R174: 2.2K → 4.7K R180: 2.2K → 4.7K R292 ABE00	DXC-930 (J) 30331 and higher DXC-930 (UC) 10351 and higher DXC-930P (EK) 10581 and higher XC-009 (J) 10251 and higher XC-009P (J) 10061 and higher	
#4	A001: R283, R284, R285 R285, R286, R287	A001: R283, R284, R285 R285, R286, R287	DXC-930 (J) 30481 and higher DXC-930 (UC) 10521 and higher DXC-930P (EK) 10801 and higher DXC-960MD (UC) 10251 and higher XC-009 (J) 10111 and higher	



IF-354/354P



IF-354/354P

1

2

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5

C-19

A

B

C

D

E

F

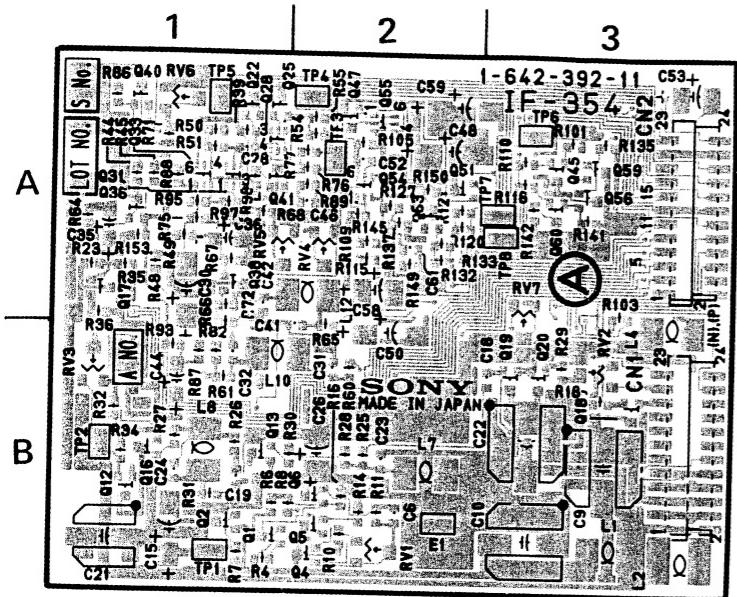
G

H

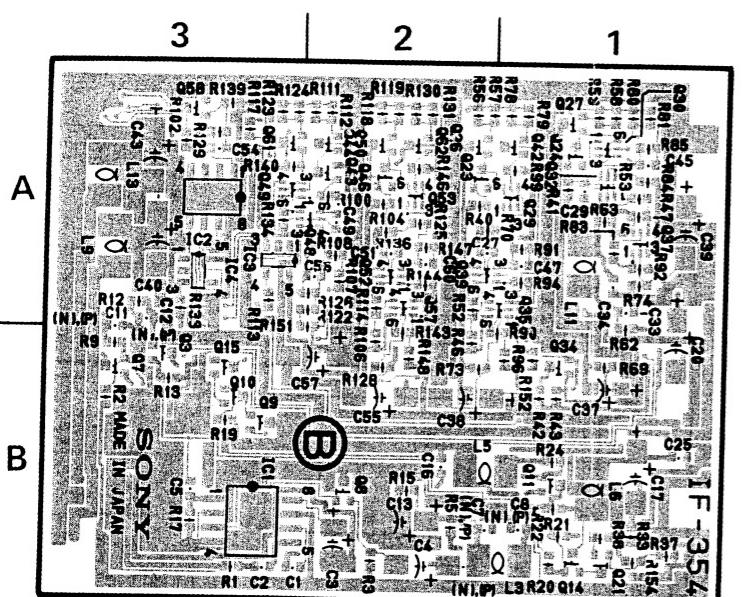
C-20

IF-354/354P BOARD

Serial No.	30001-30280	DXC-930 (J)
	10001-10270	DXC-930 (UC)
	10001-10480	DXC-930P (EK)
	10001-10050	DXC-960MD (UC)
	10001-10170	XC-009 (J)
	10001-10060	XC-009P (EK)



1-642-392-11 COMPONENT SIDE



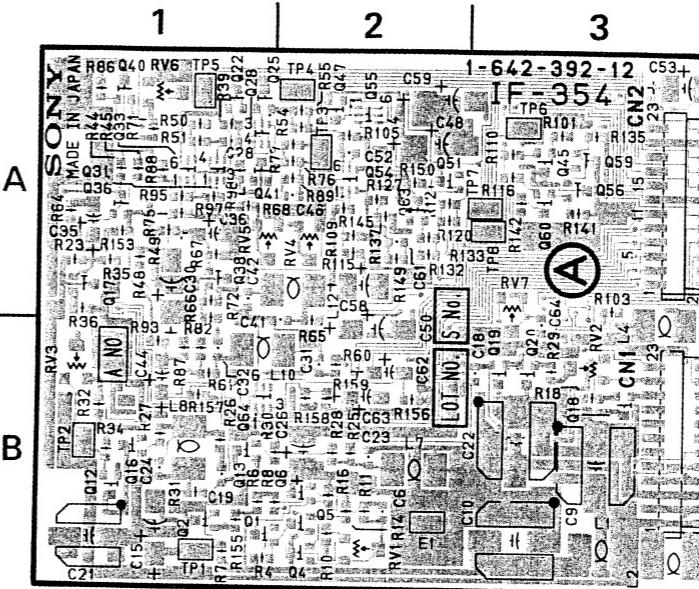
1-642-392-11 SOLDERING SIDE

IF-354/354P (1-642-392-11)

CN1	B-3	Q55	A-2
CN2	A-3	Q56	A-3
		Q57	A-2
E1	B-2	Q58	A-3
		Q59	A-3
C1	B-2	Q60	A-3
C2	A-3	Q61	A-3
C3	A-3	Q62	A-2
C4	A-3	Q63	A-2
Q1	B-1	RV1	B-2
Q2	B-1	RV2	B-3
Q3	B-3	RV3	B-1
Q4	B-2	RV4	A-2
Q5	B-2	RV5	A-1
Q6	B-2	RV6	A-1
Q7	B-3	RV7	A-3
Q8	B-2		
Q9	B-3	TP1	B-1
Q10	B-3	TP2	B-1
Q11	B-1	TP3	A-2
Q12	B-1	TP4	A-2
Q13	B-1	TP5	A-1
Q14	B-1	TP6	A-3
Q15	B-3	TP7	A-3
Q16	B-1	TP8	A-3

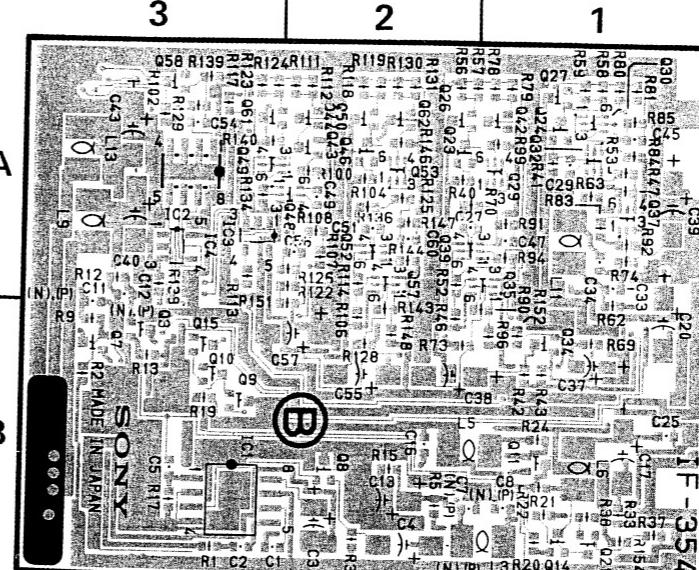
IF-354/354P BOARD

Serial No.	30281-	DXC-930 (J)
	10271-	DXC-930 (UC)
	10481-	DXC-930P (EK)
	50001-	DXC-930P (UC)
	10051-	DXC-960MD (UC)
	10171-	XC-009 (J)
	10061-	XC-009P (EK)



1-642-392-12 COMPONENT SID

22 A-1
23 A-2
24 A-1
25 A-1
26 A-2
27 A-1
28 A-1
29 A-1
30 A-1
31 A-1
32 A-1
33 A-1
34 B-1
35 A-1
36 A-1
37 A-1
38 A-1
39 A-2
40 A-1
41 A-1
42 A-1
43 A-2
44 A-2
45 A-3
46 A-2
47 A-2
48 A-2
49 A-3
50 A-2
51 A-2
52 A-2
53 A-2
54 A-2



-642-392-12 SOLDEBING SIDE

IF-354/354P (1-642-392-12)

CN1	B-3	Q55	A-2
CN2	A-3	Q56	A-3
		Q57	A-2
E1	B-2	Q58	A-3
		Q59	A-3
IC1	B-3	Q60	A-3
IC2	A-3	Q61	A-3
IC3	A-3	Q62	A-2
IC4	A-3	Q63	A-2
		Q64	B-1
Q1	B-1		
Q2	B-1	RV1	B-2
Q3	B-3	RV2	B-3
Q4	B-2	RV3	B-1
Q5	B-2	RV4	A-2
Q6	B-2	RV5	A-1
Q7	B-3	RV6	A-1
Q8	B-2	RV7	A-3
Q9	B-3		
Q10	B-3	TP1	B-1
Q11	B-1	TP2	B-1
Q12	B-1	TP3	A-2
Q13	B-1	TP4	A-2
Q14	B-1	TP5	A-1
Q15	B-3	TP6	A-3
Q16	B-1	TP7	A-3
Q17	A-1	TP8	A-3

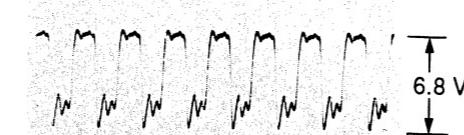
IF-354/354P BOARD

NOTE:

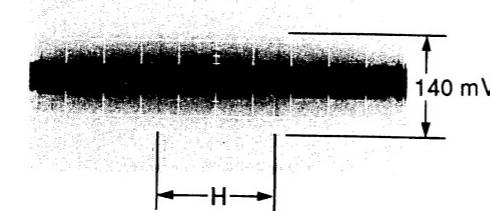
- All voltage are DC, measured with a digital voltmeter.
- DC 電圧はデジタル電圧計による値
- DISPLAY/BARS bottom → "BARS"
- GAIN :00DB
- C. TEMP :3200K
- WHT. BAL :AUTO
- R GAIN :+00
- B GAIN :+00
- CCD IRIS :OFF
- SHUTTER :OFF

IF-354/354P IF-354/354P

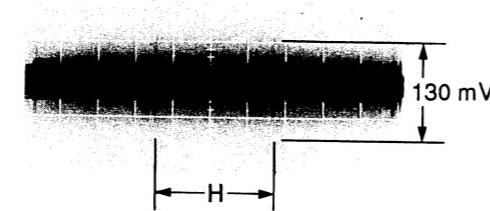
IF, CN1-10 14MHz



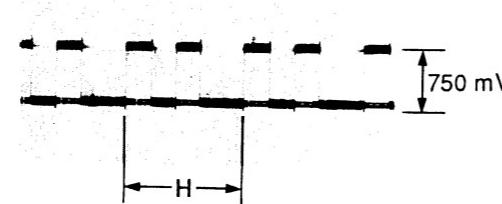
IF, CN1-21 G IE (LENS: CLOSE)



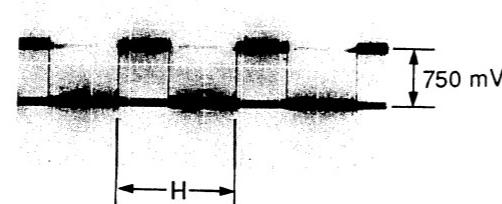
IF, CN1-19 R IE (LENS: CLOSE)



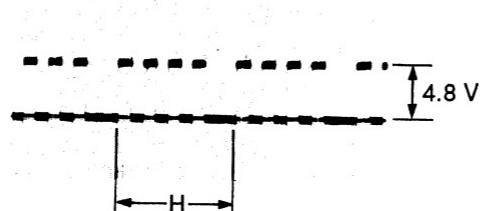
IF, CN2-1 R PR



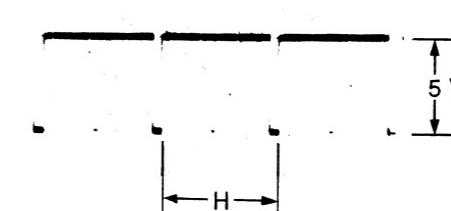
IF, CN2-3 G PR



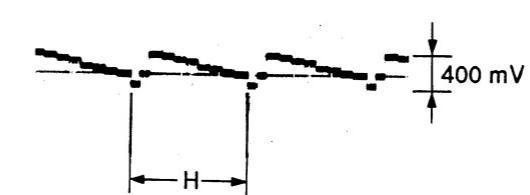
IF, CN2-5 B PR



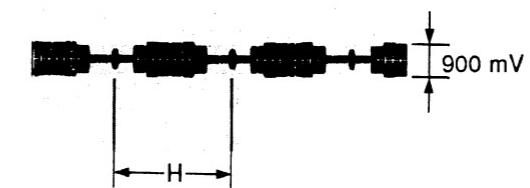
IF, CN2-8 SYNC



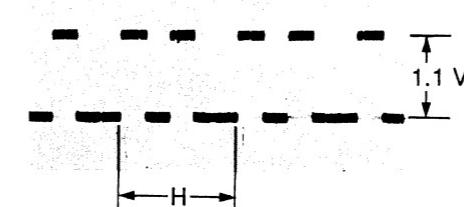
IF, CN2-9 Y



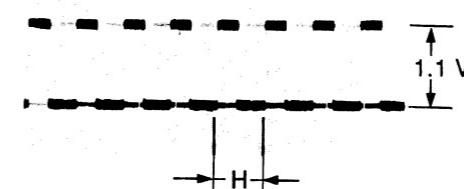
IF, CN2-11 CHROMA



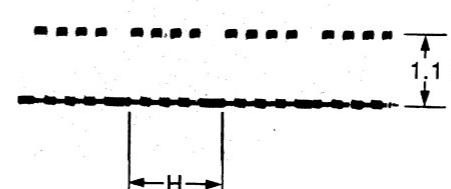
IF, CN2-16 R



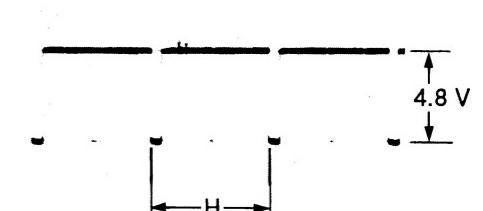
IF, CN2-18 G



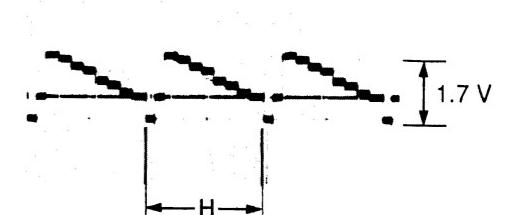
IF, CN2-20 B



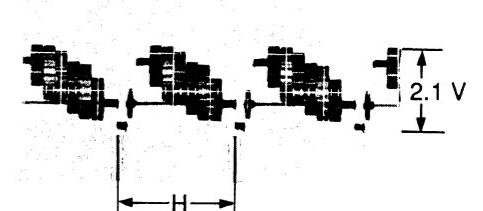
IF, CN2-15 SYNC



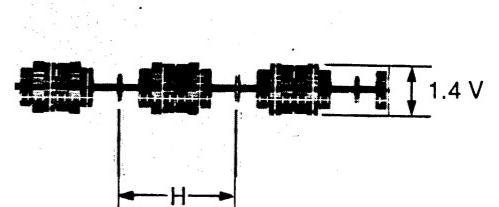
IF, CN2-24 Y



IF, CN2-12 VBS

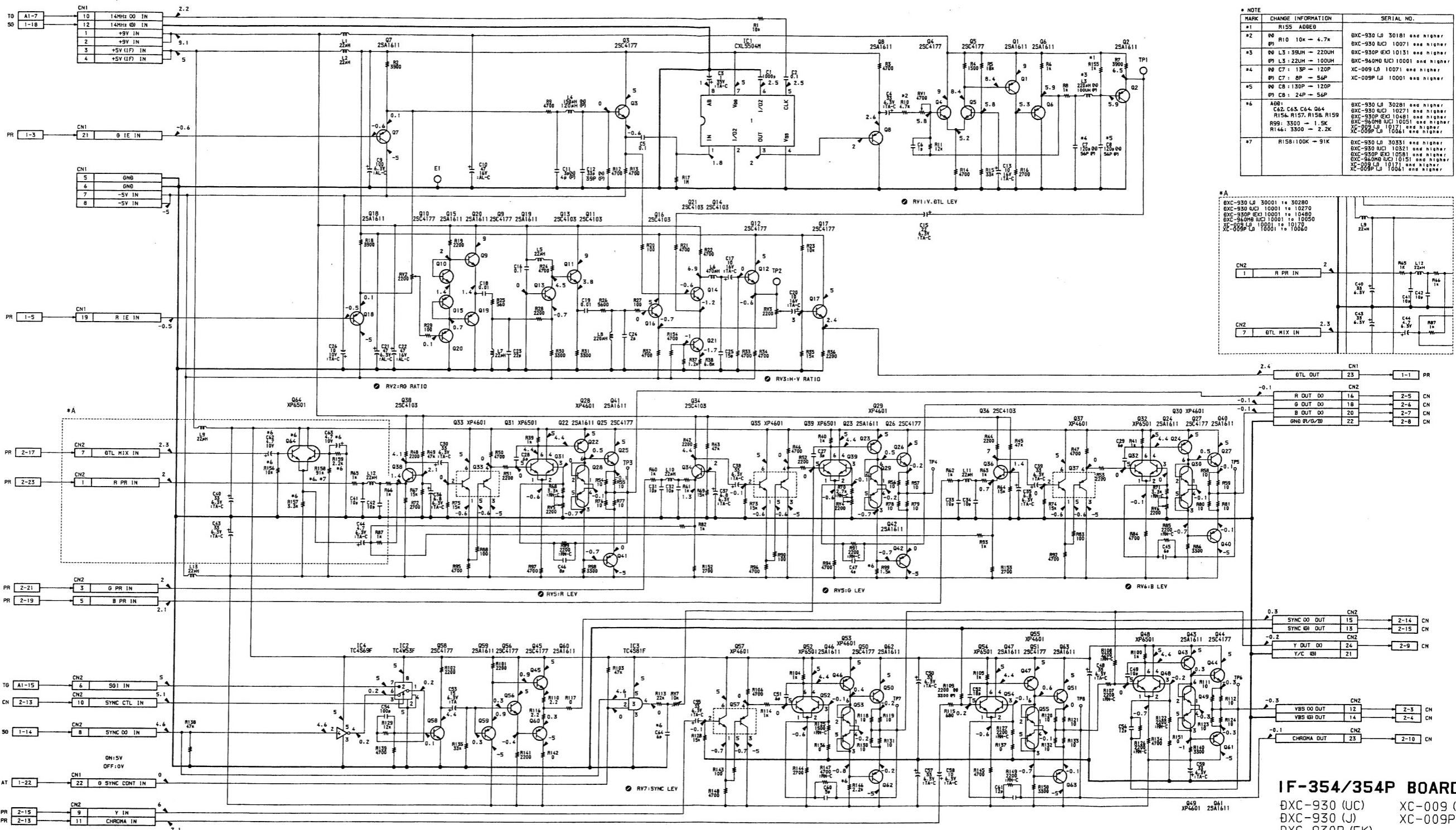


IF, CN2-23 CHROMA



IF-354/354P

IF-354/354P BOARD

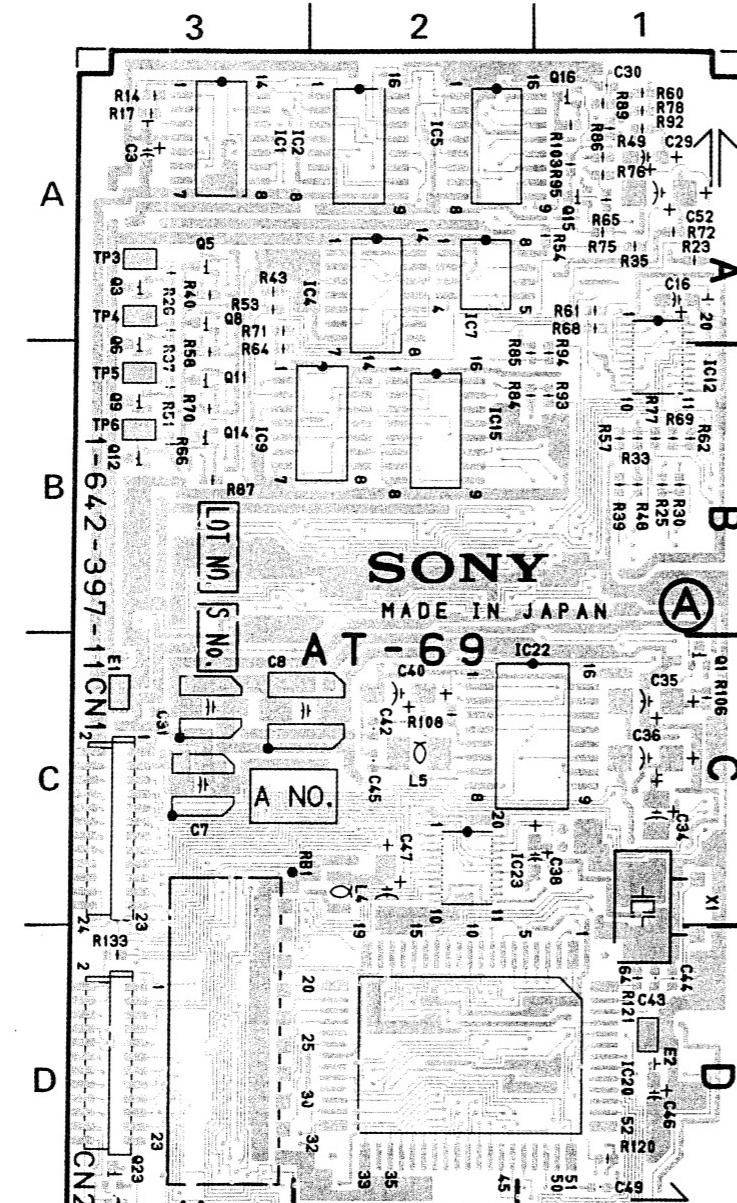


AT-69 BOARD

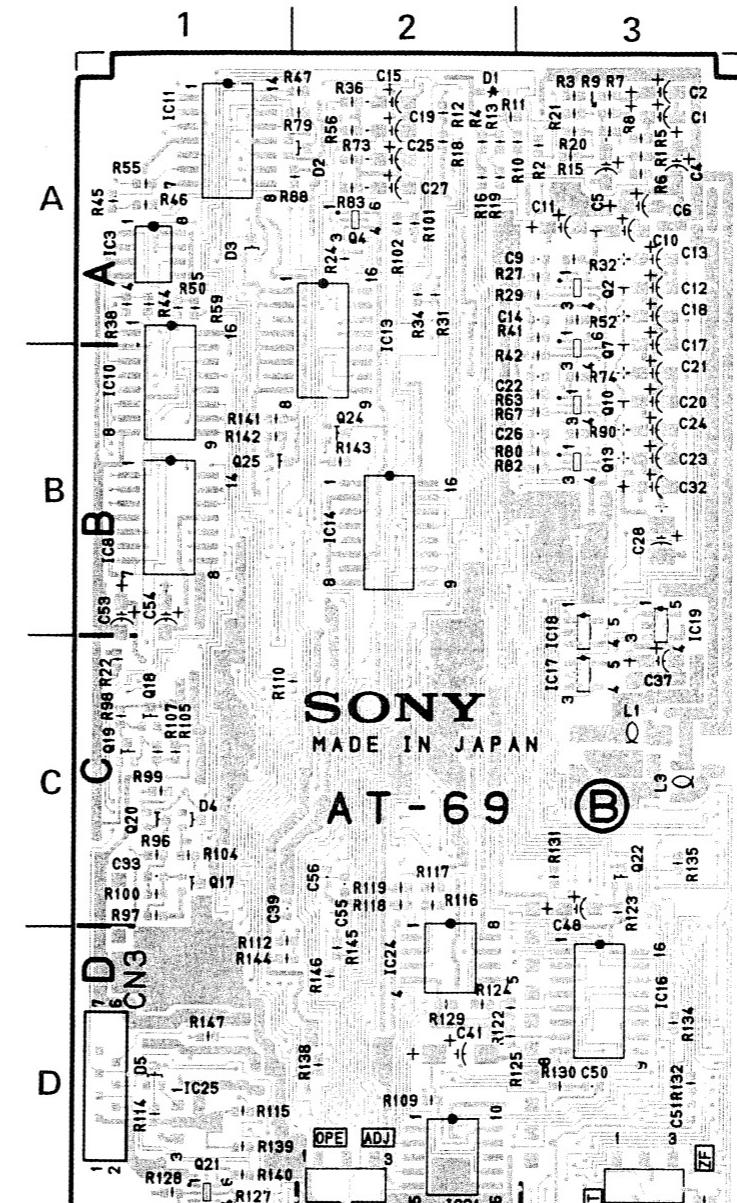
AT-69 (1-642-397-11, 12)

CN1	C-3	RB1	D-3
CN2	D-3	SW1	D-2
D1	A-2	SW2	D-3
D2	A-1		
D3	A-1	TP3	A-3
D4	C-1	TP4	A-3
D5	D-1	TP5	B-3
		TP6	B-3
E1	C-3		
E2	D-1	X1	C-1
IC1	A-3		
IC2	A-2		
IC3	A-1		
IC5	A-1		
IC7	A-1		
IC8	B-1		
IC9	B-3		
IC10	B-1		
IC11	A-1		
IC12	B-1		
IC13	A-1		
IC14	B-2		
IC15	B-2		
IC16	D-3		
IC17	C-3		
IC18	B-3		
IC19	B-3		
IC20	D-1		
IC21	D-2		
IC22	C-1		
IC23	C-2		
IC24	D-2		
IC25	D-1		

Q1	C-1
Q2	A-3
Q3	A-3
Q4	A-2
Q5	A-3
Q6	B-3
Q7	B-3
Q8	A-3
Q9	B-3
Q10	B-3
Q11	B-3
Q12	B-3
Q13	B-3
Q14	B-3
Q15	A-1
Q16	A-1
Q17	C-1
Q18	C-1
Q19	C-1
Q20	C-1
Q21	D-1
Q22	C-3
Q23	D-3
Q24	B-2
Q25	B-1



1-642-397-11, 12 COMPONENT SIDE



1-642-397-11, 12 SOLDERING SIDE

AT-69 (1-642-397-11, 12)

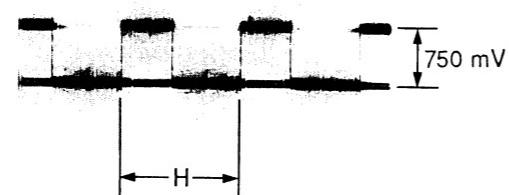
CN1	C-3	RB1	D-3
CN2	D-3	SW1	D-2
D1	A-2	SW2	D-3
D2	A-1		
D3	A-1	TP3	A-3
D4	C-1	TP4	A-3
D5	D-1	TP5	B-3
		TP6	B-3
E1	C-3		
E2	D-1	X1	C-1
IC1	A-3		
IC2	A-2		
IC3	A-1		
IC5	A-1		
IC7	A-1		
IC8	B-1		
IC9	B-3		
IC10	B-1		
IC11	A-1		
IC12	B-1		
IC13	A-1		
IC14	B-2		
IC15	B-2		
IC16	D-3		
IC17	C-3		
IC18	B-3		
IC19	B-3		
IC20	D-1		
IC21	D-2		
IC22	C-1		
IC23	C-2		
IC24	D-2		
IC25	D-1		

Q1	C-1
Q2	A-3
Q3	A-3
Q4	A-2
Q5	A-3
Q6	B-3
Q7	B-3
Q8	A-3
Q9	B-3
Q10	B-3
Q11	B-3
Q12	B-3
Q13	B-3
Q14	B-3
Q15	A-1
Q16	A-1
Q17	C-1
Q18	C-1
Q19	C-1
Q20	C-1
Q21	D-1
Q22	C-3
Q23	D-3
Q24	B-2
Q25	B-1

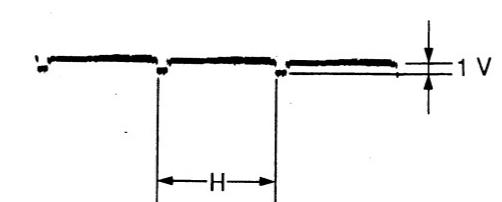
AT-69 BOARD**NOTE:**

- All voltage are DC, measured with a digital voltmeter.
- DC 電圧はデジタル電圧計による値
- DISPLAY/BARS bottom → "BARS"
- GAIN :00DB
- C. TEMP :3200K
- WHT. BAL :AUTO
- R GAIN :+00
- B GAIN :+00
- CCD IRIS :OFF
- SHUTTER :OFF

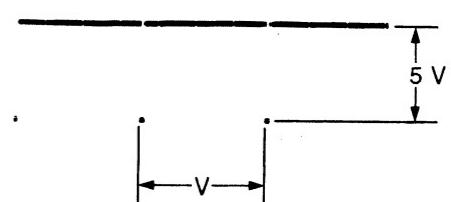
AT, CN2-5 G PR



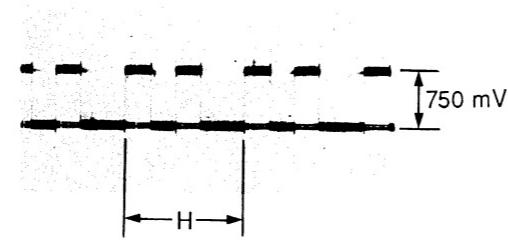
AT, CN1-10 Y (IRIS)



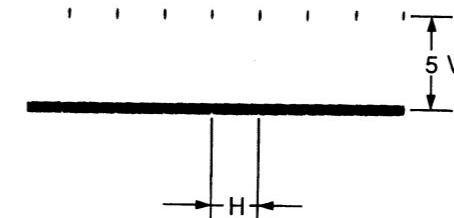
AT, CN2-2 VD



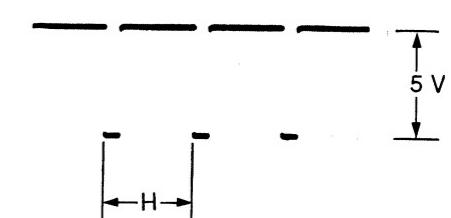
AT, CN2-3 R PR



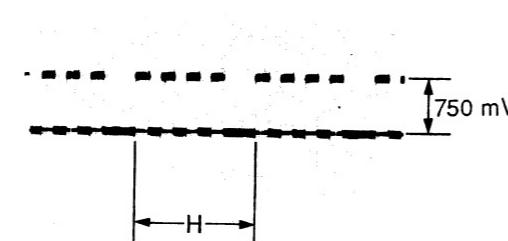
AT, CN1-8 CLP1



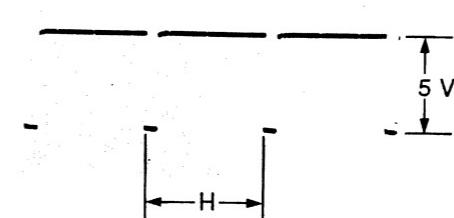
AT, CN2-1 BLKG



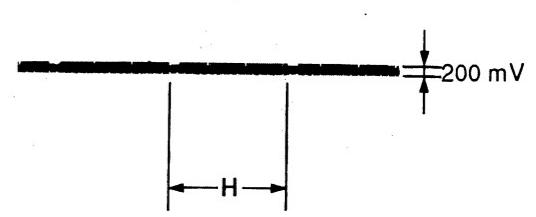
AT, CN2-7 B PR



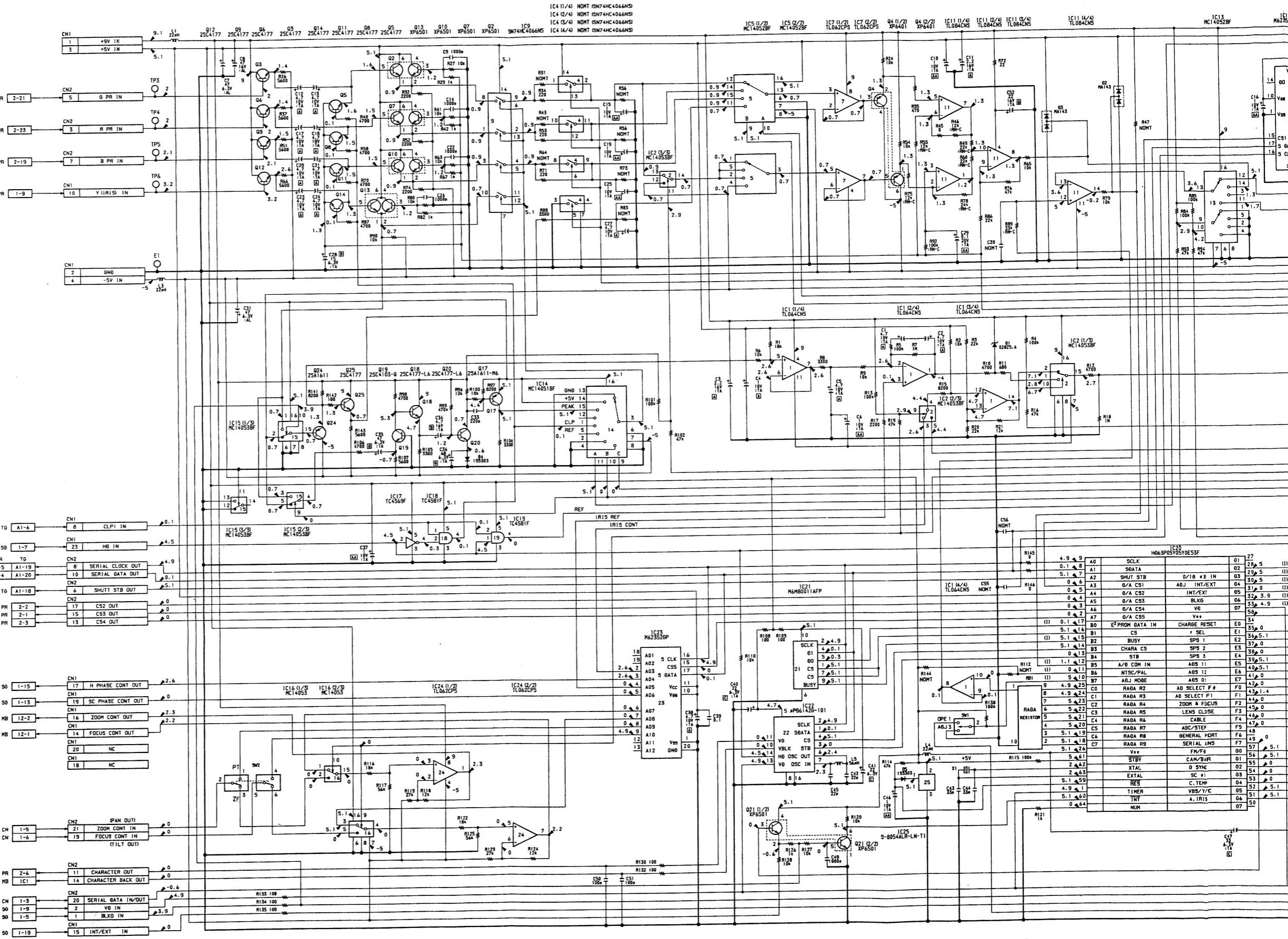
AT, CN1-23 HD

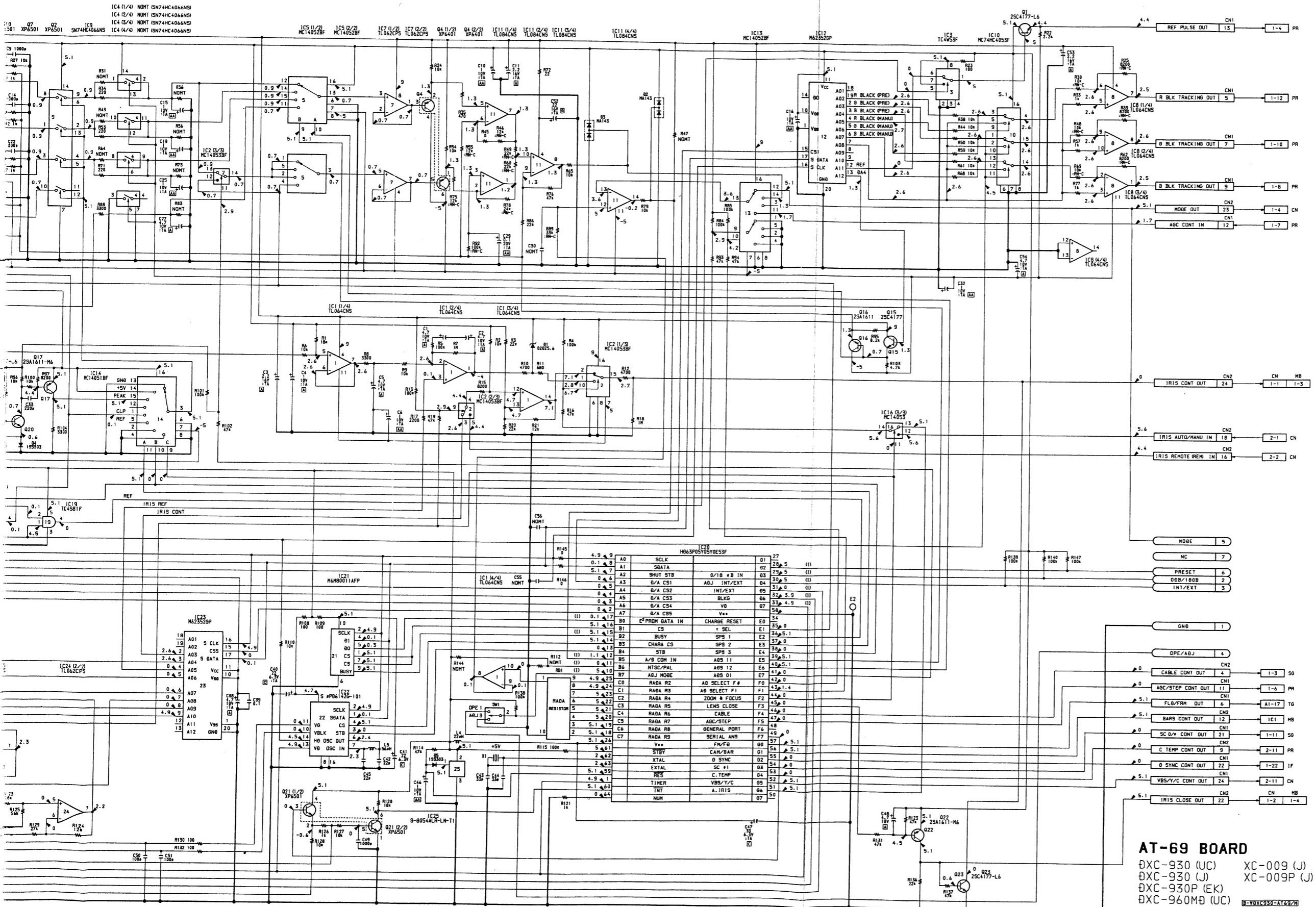


AT, CN1-13 REF PULSE



AT-69 BOARD



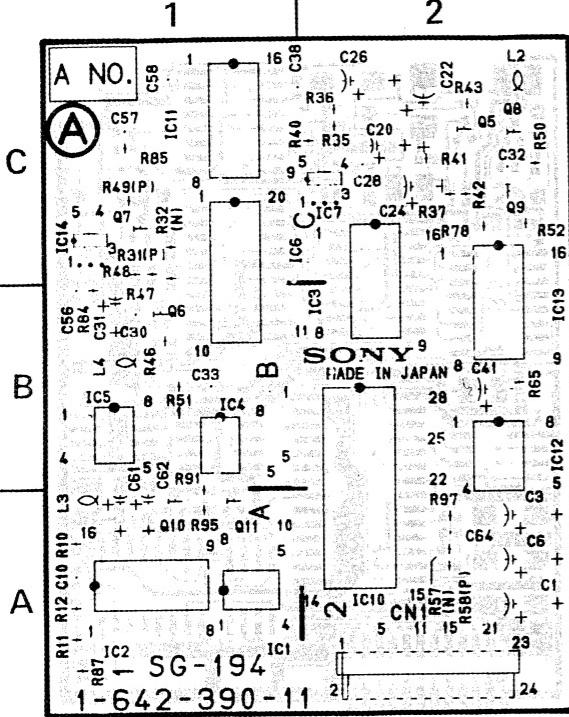


AT-69 BOARD

ĐXC-930 (UC) XC-009 (J)
 ĐXC-930 (J) XC-009P (J)
 ĐXC-930P (EK)
 ĐXC-960MĐ (UC) B-VBXC930-A169/M

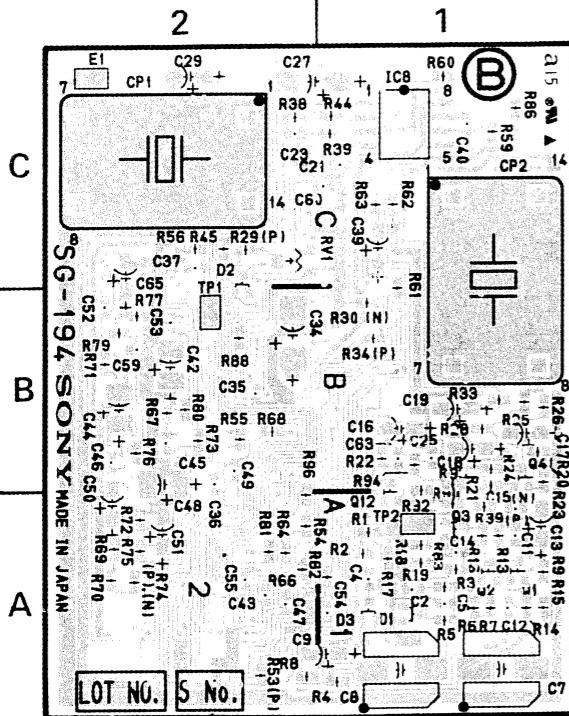
SG-194/194P BOARD

Serial No.	30001-30230	DXC-930 (J)
	10001-10170	DXC-930 (UC)
	10001-10380	DXC-930P (EK)
	10001-10050	DXC-960MD (UC)
	10001-10170	XC-009 (J)
	10001-10060	XC-009P (EK)



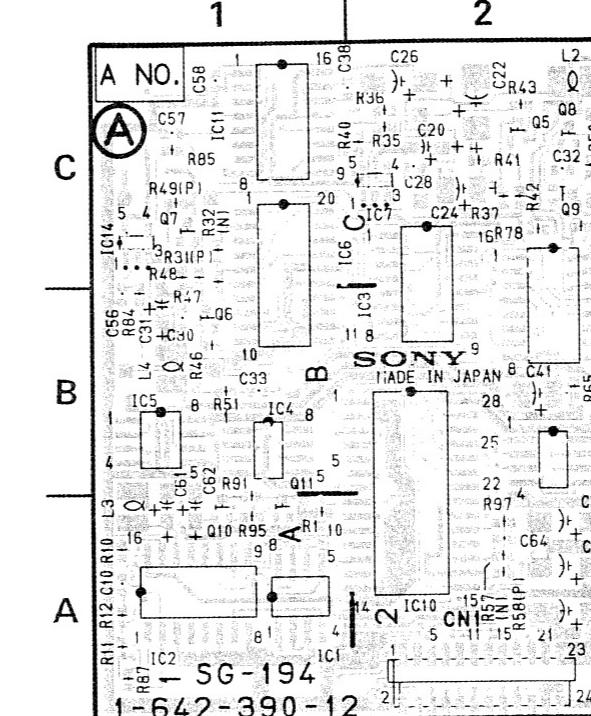
SG-194/194P (1-642-390-1)

CN1	A-
CP1	C-
CP2	C-
D1	A-
D2	C-
D3	A-
E1	C-
IC1	A-
IC2	A-
IC3	C-
IC4	B-
IC5	B-
IC6	C-
IC7	C-
IC8	C-
IC10	A-
IC11	C-
IC12	B-
IC13	B-
IC14	C-
Q1	A-
Q2	A-
Q3	A-
Q4	B-
Q5	C-
Q6	B-
Q7	C-
Q8	C-
Q9	C-
Q10	A-
Q11	A-
Q12	A-
RV1	C-
TP1	B-



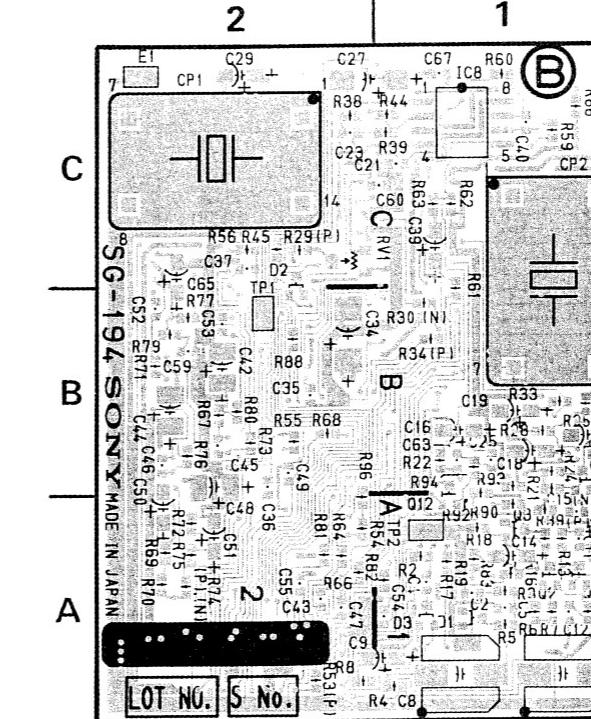
SG-194/194P BOARD

Serial No.	30231-30480	DXC-930 (J)
	10171-10570	DXC-930 (UC)
	10381-10980	DXC-930P (EK)
	10051-10250	DXC-960MD (UC)
	10171-10320	XC-009 (J)
	10061-10110	XC-009P (EK)



1983-1984
Yearly
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of the
Board
of
Education

SG-194/194P (1-642-390-12)	
CN1	A-2
CP1	C-2
CP2	C-1
D1	A-1
D2	C-2
D3	A-1
E1	C-2
IC1	A-1
IC2	A-1
IC3	C-2
IC4	B-1
IC5	B-1
IC6	C-1
IC7	C-2
IC8	C-1
IC10	A-1
IC11	C-1
IC12	B-2
IC13	B-2
IC14	C-1
Q1	A-1
Q2	A-1
Q3	A-1
Q4	B-1
Q5	C-2
Q6	B-1
Q7	C-1
Q8	C-2
Q9	C-2
Q10	A-1
Q11	A-1
Q12	A-1

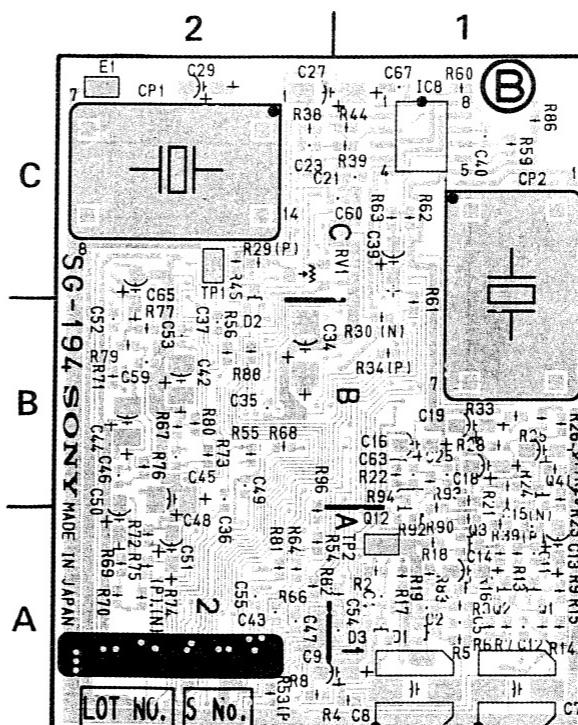
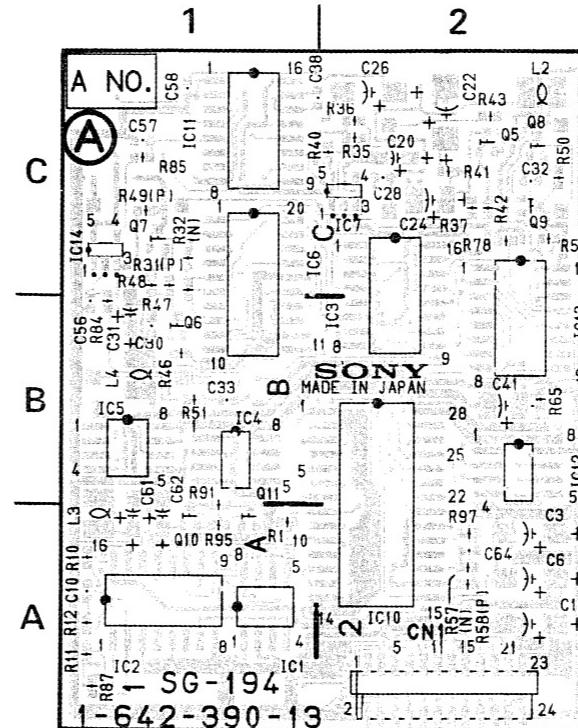


42-390-112 GOLDEN AGE

SG-194/194P

SG-194/194P BOARD

Serial No.	30481-	DXC-930 (J)
	10571-	DXC-930 (UC)
	10981-	DXC-930P (EK)
	50001-	DXC-930P (UC)
	10251-	DXC-960MD (UC)
	10321-	XC-009 (J)
	10111-	XC-009P (EK)



SG-194/194P (1-642-390-13)

CN1	A-2
CP1	C-2
CP2	C-1
D1	A-1
D2	C-2
D3	A-1
E1	C-2
IC1	A-1
IC2	A-1
IC3	C-2
IC4	B-1
IC5	B-1
IC6	C-1
IC7	C-2
IC8	C-1
IC10	A-1
IC11	C-1
IC12	B-2
IC13	B-2
IC14	C-1
Q1	A-1
Q2	A-1
Q3	A-1
Q4	B-1
Q5	C-2
Q6	B-1
Q7	C-1
Q8	C-2
Q9	C-2
Q10	A-1
Q11	A-1
Q12	A-1
RV1	C-1
TP1	B-2
TP2	A-1

1-642-390-13 SOLDERING SIDE

DXC-930/930P
DXC-960MD
XC-009/009P

SG-194/194P

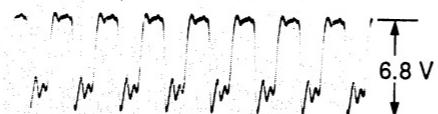


SG-194/194P

SG-194/194P BOARD**NOTE:**

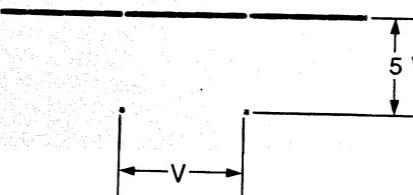
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- DC 電圧はデジタル電圧計による値
- DISPLAY/BARS bottom → "BARS"
- GAIN :00DB
- C. TEMP :3200K
- WHT. BAL :AUTO
- R GAIN :+00
- B GAIN :+00
- CCD IRIS :OFF
- SHUTTER :OFF

SG, CN1-20 14MHz

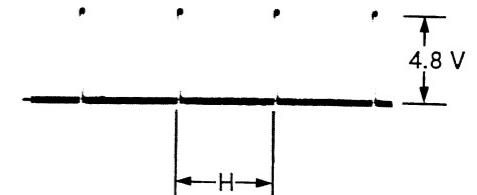


6.8 V

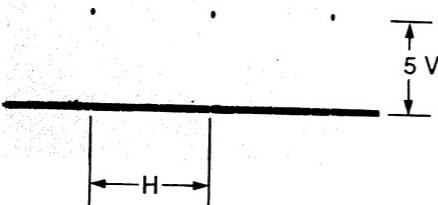
SG, CN1-9 VD



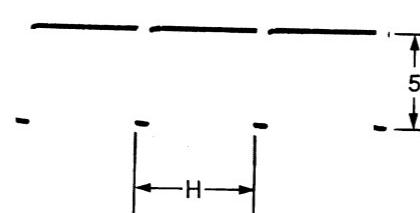
SG, CN1-8 BF



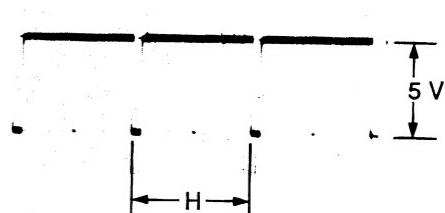
SG, CN1-16 CLP (AGC)



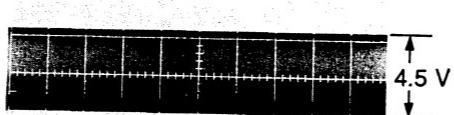
SG, CN1-7 HD



SG, CN1-14 SYNC

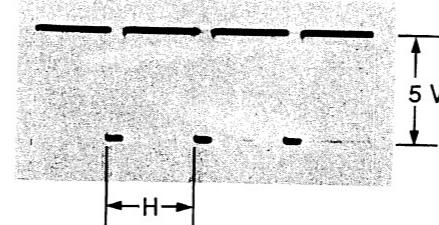


SG, CN1-17 28MHz

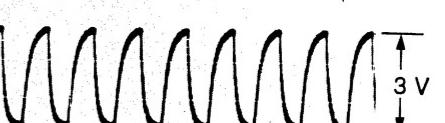


4.5 V

SG, CN1-5 BLKG



SG, CN1-12 SC

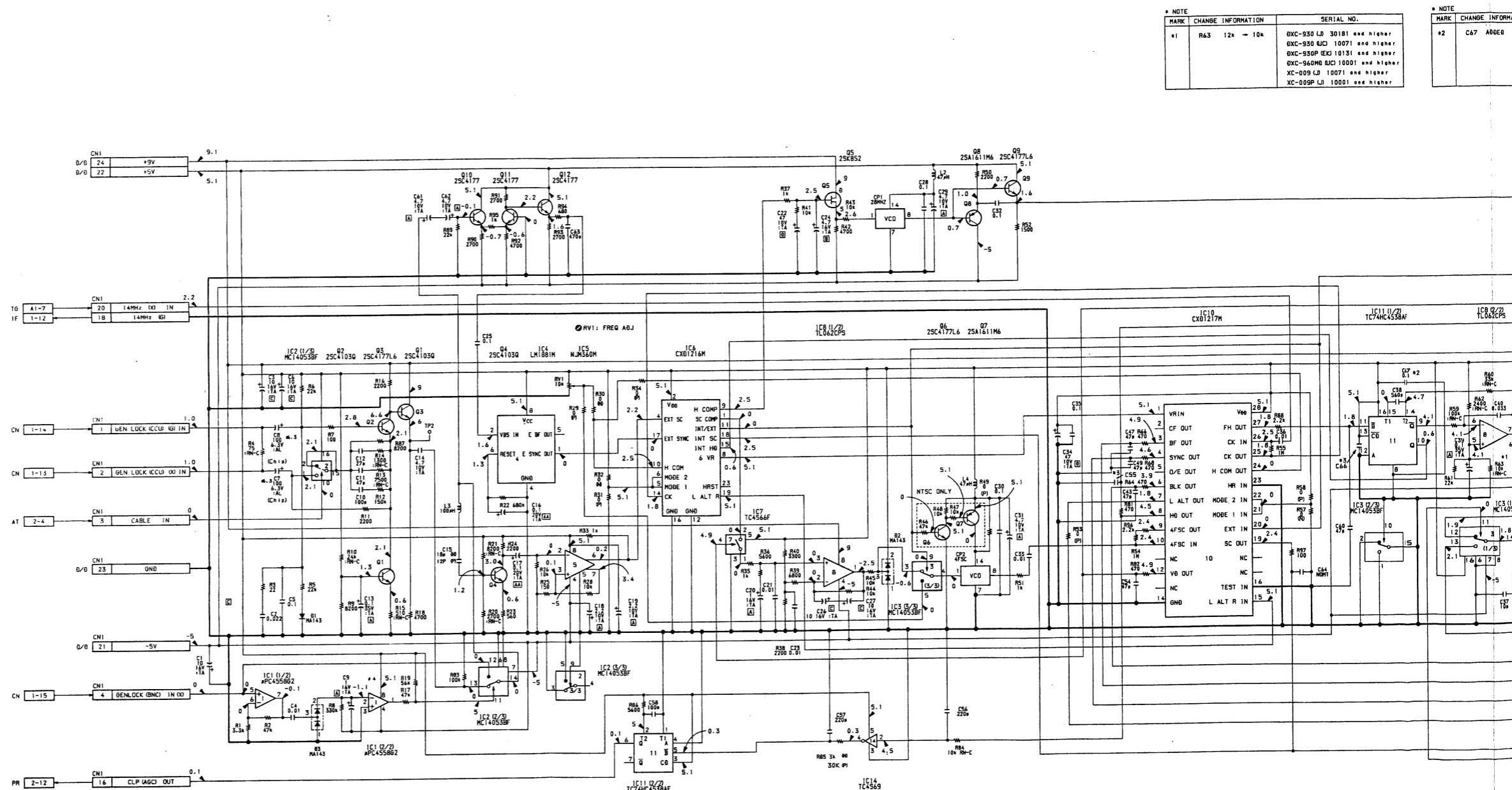


3 V

SG-194/194P

SG-194/194P

SG-194/194P BOARD



DXC-930/930P
DXC-960MD
XC-009/009P

C-45

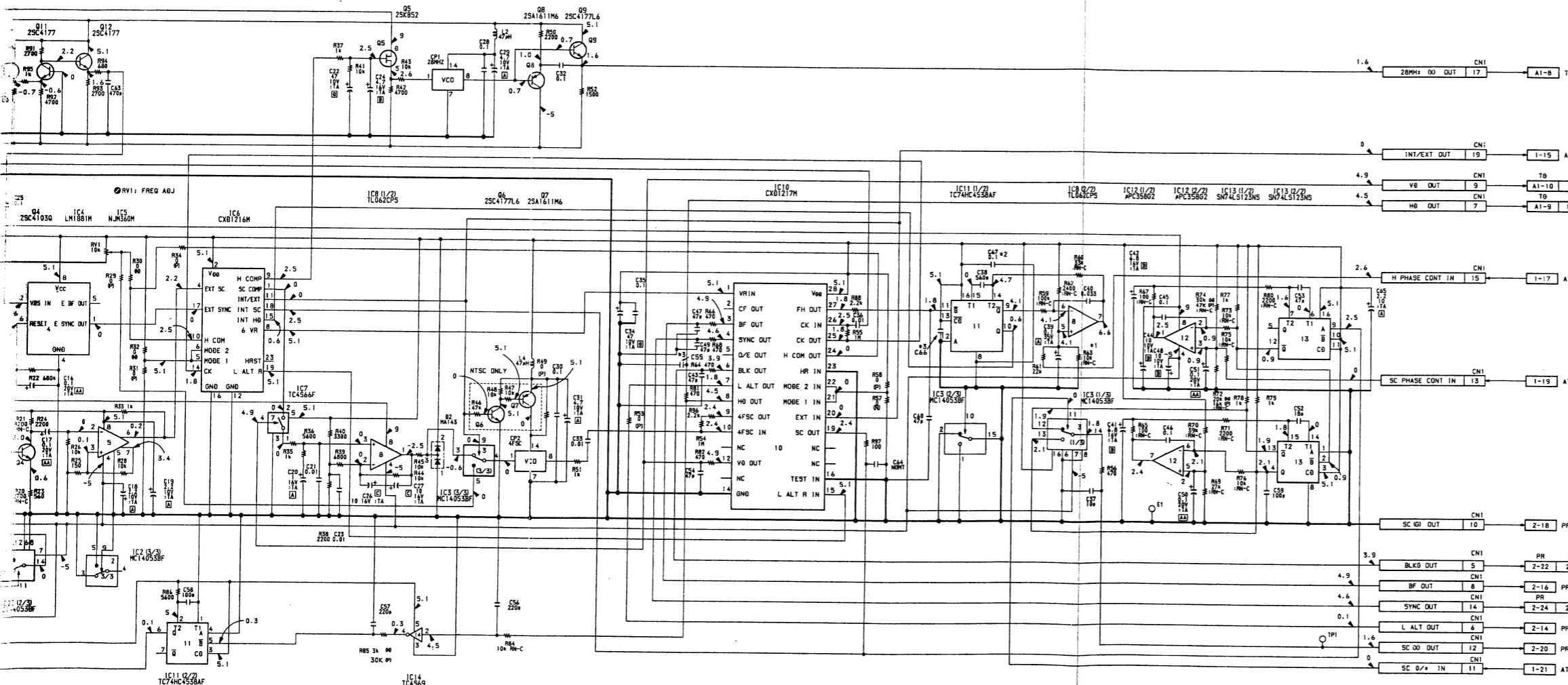
C-46

H

NOTE		
MARK	CHANGE INFORMATION	SERIAL NO.
#1	R63 12x → 10k	DXC-930 (J) 30181 and higher DXC-930 (UC) 10071 and higher DXC-930P (EK) 10131 and higher DXC-940M (UC) 10001 and higher XC-009 (J) 10071 and higher XC-009P (J) 10001 and higher

NOTE		
MARK	CHANGE INFORMATION	SERIAL NO.
#2	C67 AB6E9	DXC-930 (J) 30231 and higher DXC-930 (UC) 10171 and higher DXC-930P (EK) 10381 and higher DXC-940M (UC) 10051 and higher XC-009 (J) 10171 and higher XC-009P (J) 10061 and higher

NOTE		
MARK	CHANGE INFORMATION	SERIAL NO.
#3	C55 (47a) DELETED C66 ID-1uF DELETED	DXC-930 (J) 30281 and higher DXC-930 (UC) 10271 and higher DXC-930P (EK) 10481 and higher DXC-940M (UC) 10051 and higher XC-009 (J) 10171 and higher XC-009P (J) 10061 and higher



SG-194/194P BOARD

DXC-930 (UC) XC-009 (J)
 DXC-930 (J) XC-009P (J)
 DXC-930P (EK)
 DXC-940M (UC)

B-194/194P

PA-133, PA-134, MB-380, CN-579, CN-580

PA-133, PA-134, MB-380, CN-579, CN-580

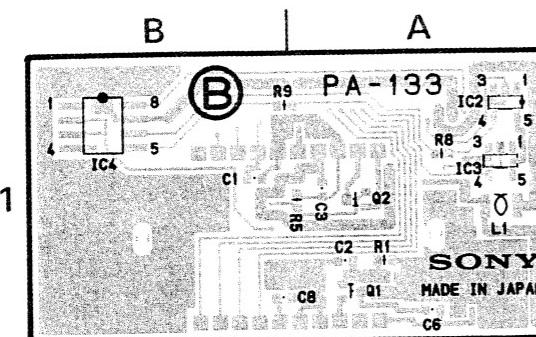
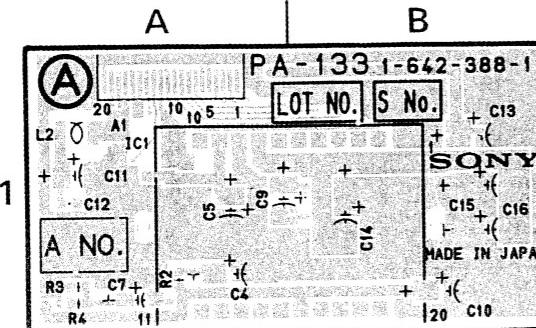
P

PA-133 BOARD

PA-133 (1-642-388-11, 12)

IC2 A-1
IC3 A-1
IC4 B-1

Q1 A-1
Q2 A-1



1-642-388-11, 12 SOLDERING SIDE

CN-579 BOARD

CN-579 (1-642-393-11)

CN1 B-2
CN2 A-2

D1 B-2
D2 C-2

F1 B-2
F2 C-1

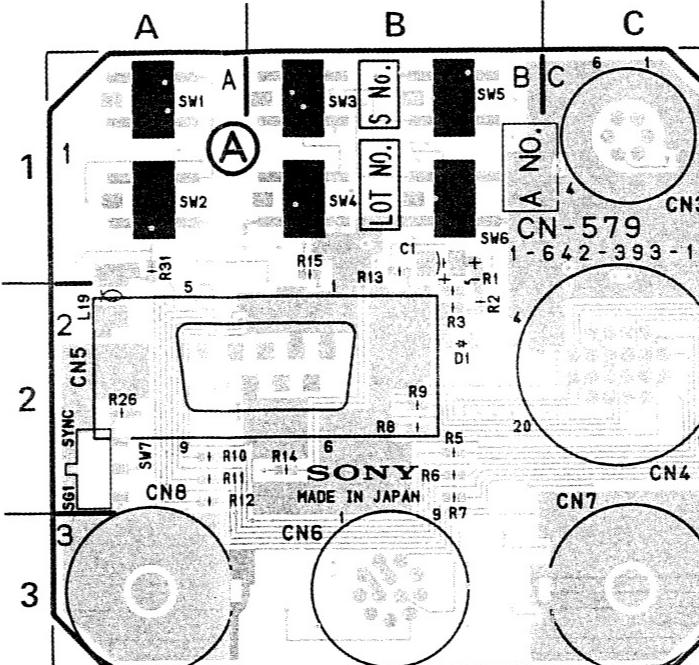
IC1 A-1

Q1 B-1
Q2 B-1
Q3 B-1
Q4 B-1
Q5 B-1
Q6 B-1
Q7 B-1
Q8 B-1
Q9 B-1
Q10 B-1

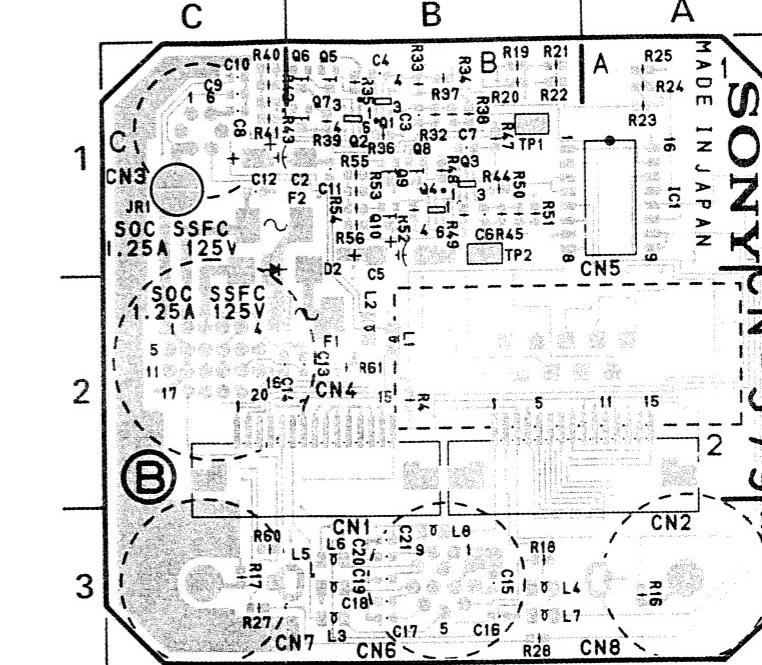
SW1 A-1
SW2 A-1
SW3 B-1
SW4 B-1
SW5 B-1
SW6 B-1
SW7 A-2

TP1 B-1
TP2 B-1

Serial No. 30001-30230 DXC-930 (J)
10001-10170 DXC-930 (UC)
10001-10380 DXC-930P (EK)
10001-10050 DXC-950MD (UC)
10001-10170 XC-009 (J)
10001-10060 XC-009P (EK)



1-642-393-11 COMPONENT SIDE



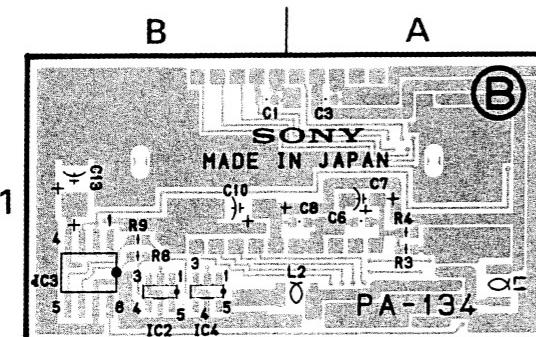
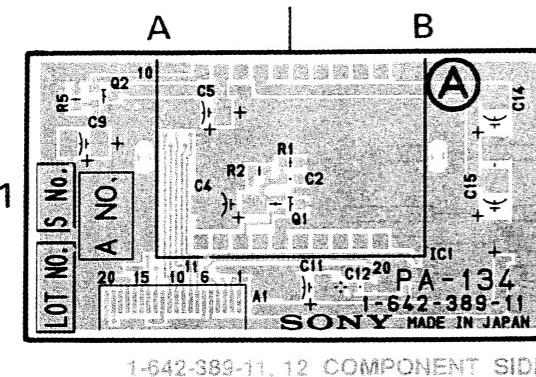
1-642-393-11 SOLDERING SIDE

PA-134 BOARD

PA-134 (1-642-389-11, 12)

IC2 B-1
IC3 B-1
IC4 B-1

Q1 B-1
Q2 A-1



1-642-389-11, 12 SOLDERING SIDE

CN-580 BOARD

CN-580 (1-642-394-11)

CN1 C-2
CN2 A-2

D1 C-1

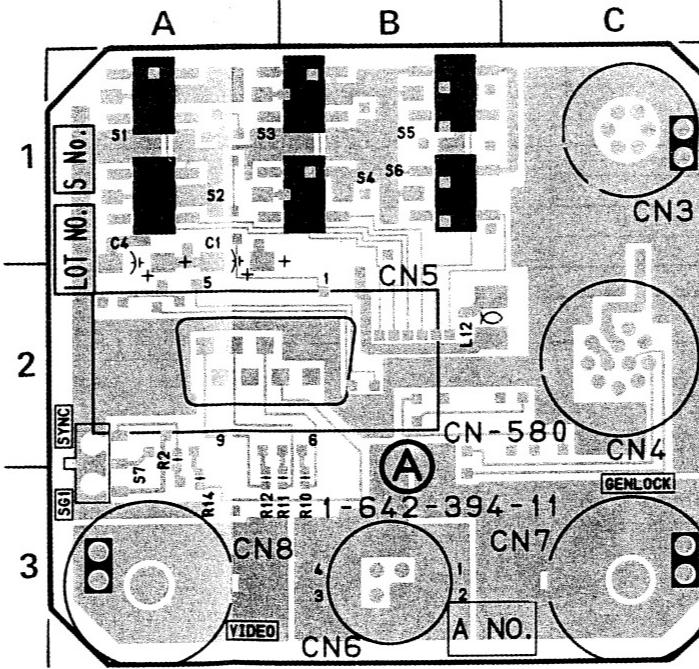
F1 B-2

IC1 A-1

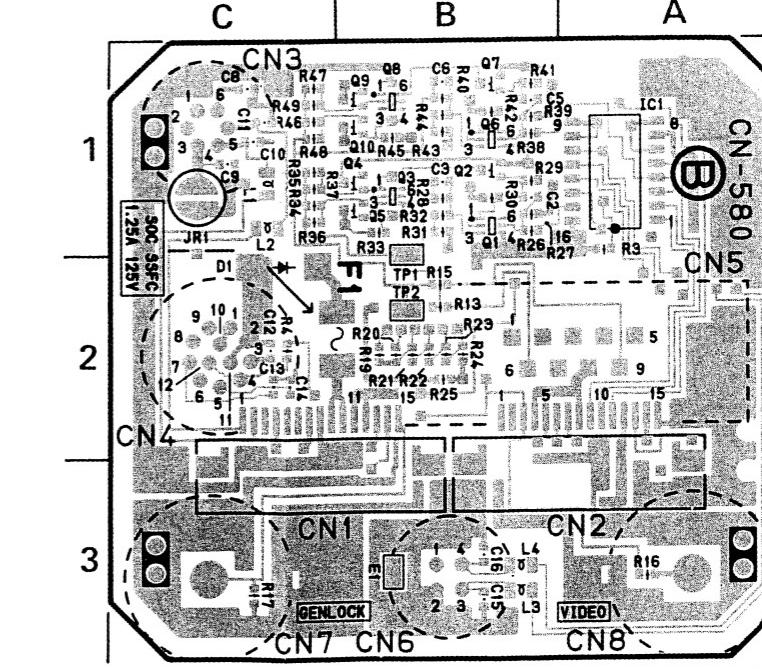
Q1 B-1
Q2 B-1
Q3 B-1
Q4 B-1
Q5 B-1
Q6 B-1
Q7 B-1
Q8 B-1
Q9 B-1
Q10 B-1

S1 A-1
S2 A-1
S3 B-1
S4 B-1
S5 B-1
S6 B-1
S7 A-2

TP1 B-1
TP2 B-2



1-642-394-11 COMPONENT SIDE



1-642-394-11 SOLDERING SIDE

C-48 (a)

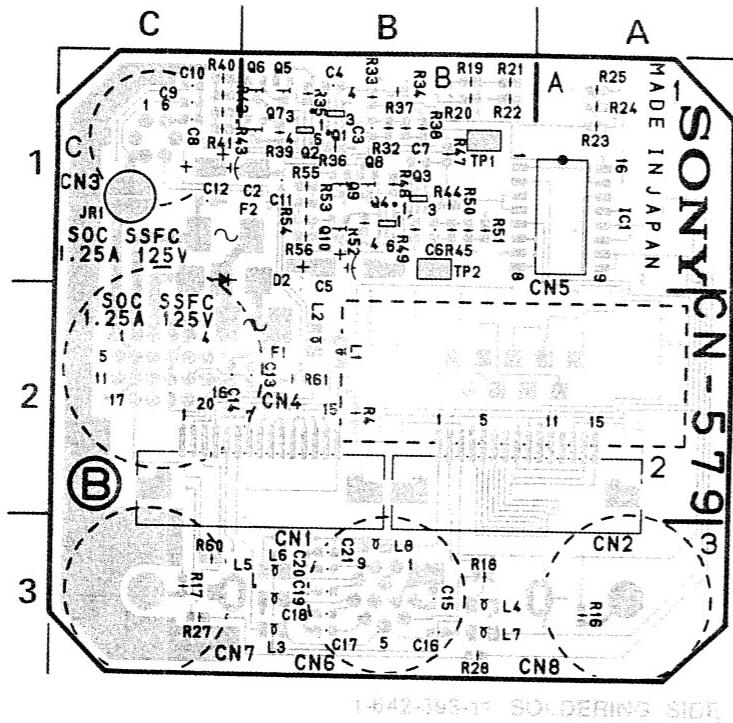
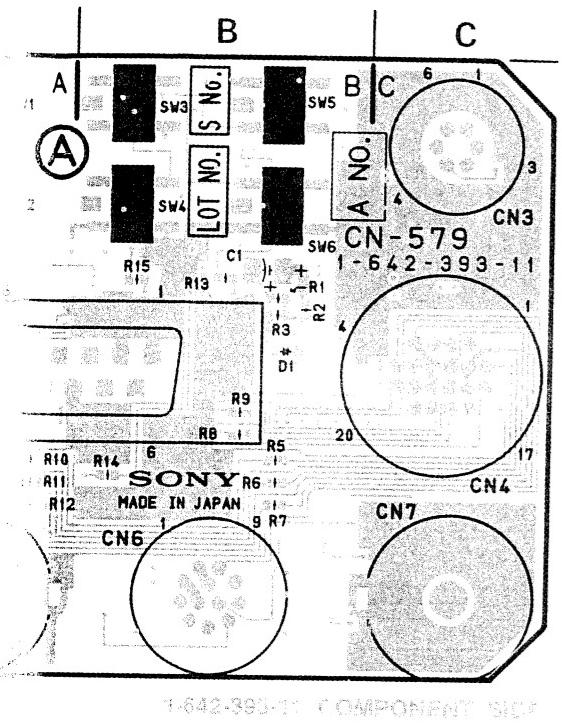
C-49 (a)

H

PA-133, PA-134, MB-380, CN-579, CN-580

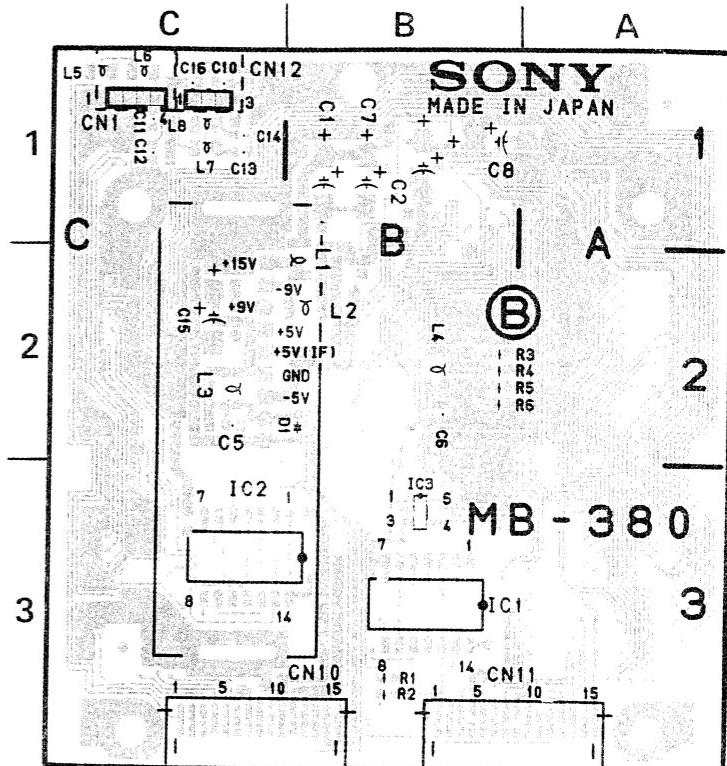
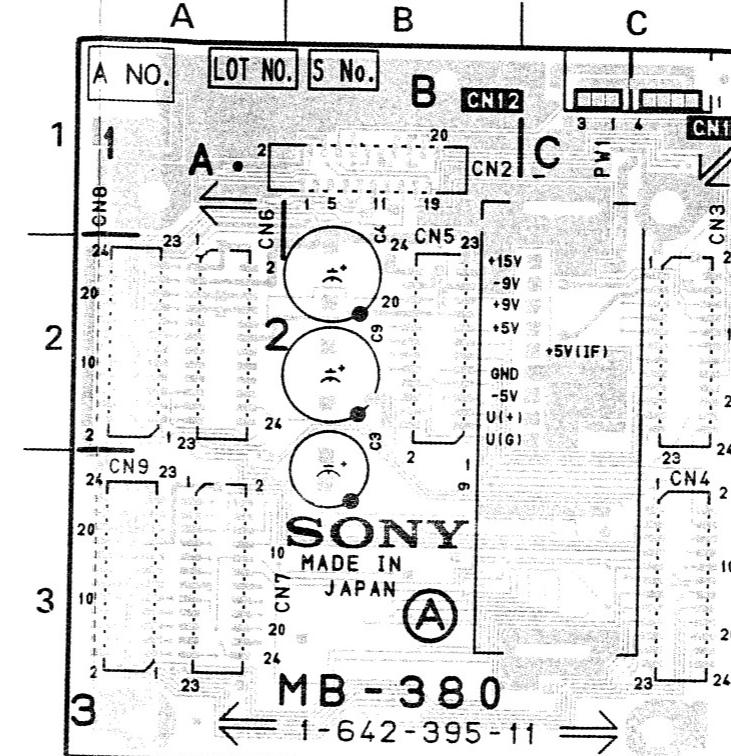
PA-133, PA-134, MB-380, CN-579, CN-580

1-30230 DXC-930 (J)
 1-10170 DXC-930 (UC)
 1-10380 DXC-930P (EK)
 1-10050 DXC-960MD (UC)
 1-10170 XC-009 (J)
 1-10060 XC-009P (EK)

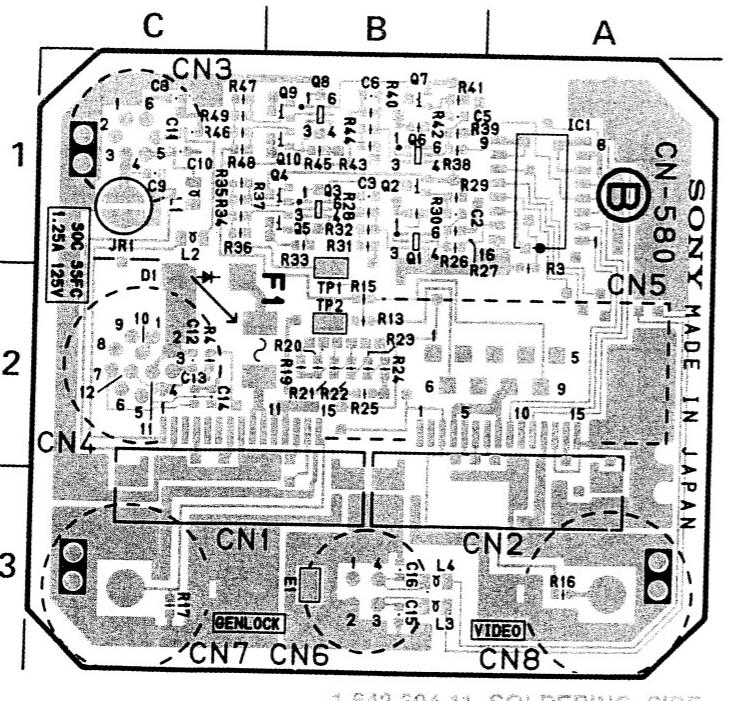
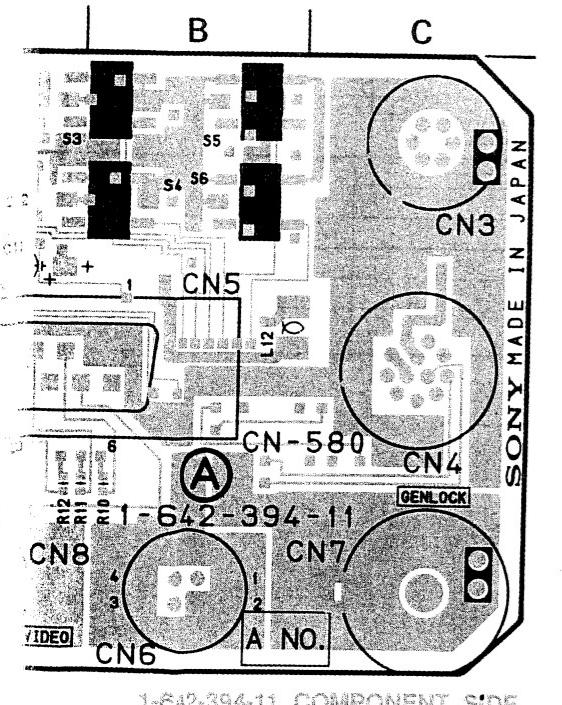


MB-380 BOARD

Serial No. 30001-30230 DXC-930 (J)
 10001-10170 DXC-930 (UC)
 10001-10380 DXC-930P (EK)
 10001-10050 DXC-960MD (UC)
 10001-10170 XC-009 (J)
 10001-10060 XC-009P (EK)



1-642-395-11 COMPONENT SIDE



MB-380 (1-642-395-11)

CN1	C-1
CN2	B-1
CN3	C-2
CN4	C-3
CN5	B-2
CN6	A-2
CN7	A-3
CN8	A-2
CN9	A-3
CN10	C-3
CN11	B-3
CN12	C-1
D1	B-2
IC1	B-3
IC2	C-3
IC3	B-3
PW1	B-2

DXC-930/930P
 DXC-960MD
 XC-009/009P

C-49 (a)

G

H

C-50 (a)

K

L

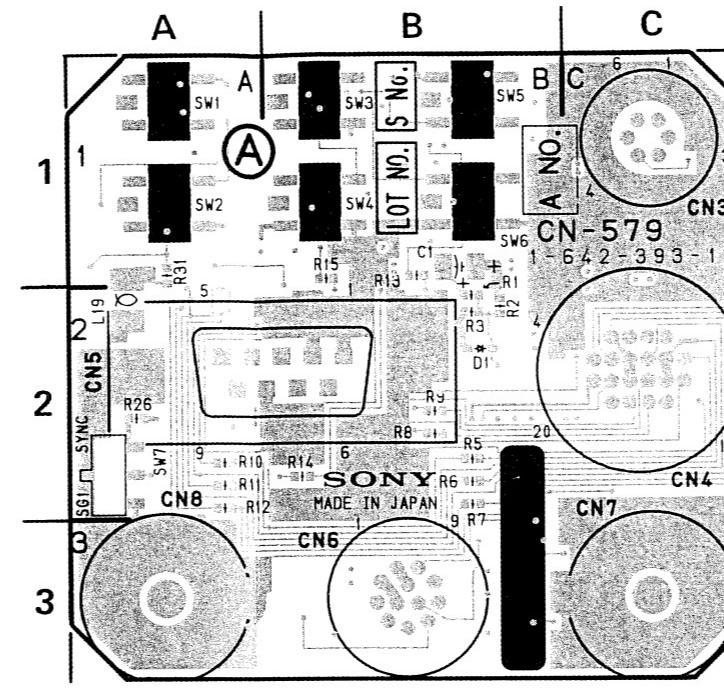


CN-579 BOARD

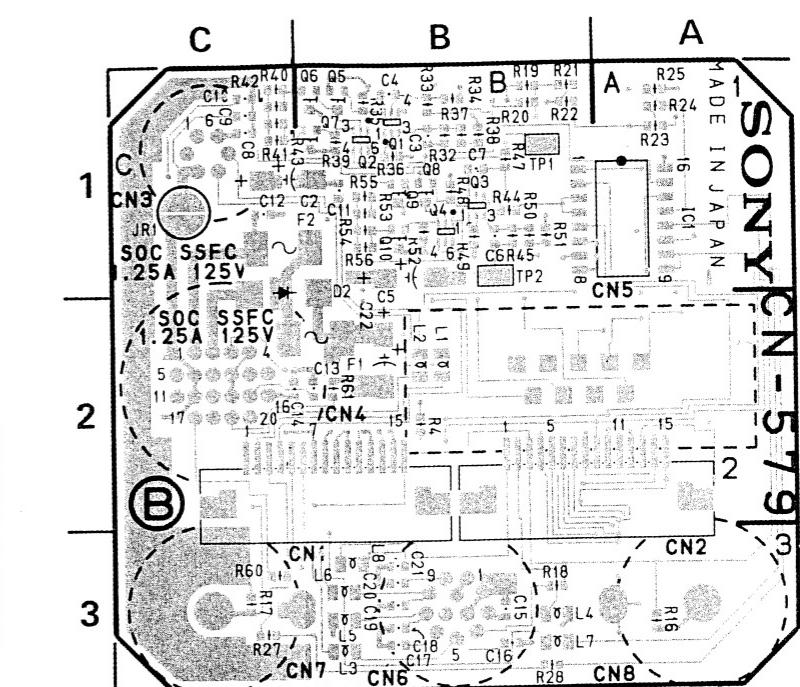
CN-579 (1-642-393-12)

CN1	B-2
CN2	A-2
D1	B-2
D2	C-2
F1	B-2
F2	C-1
IC1	A-1
Q1	B-1
Q2	B-1
Q3	B-1
Q4	B-1
Q5	B-1
Q6	B-1
Q7	B-1
Q8	B-1
Q9	B-1
Q10	B-1
SW1	A-1
SW2	A-1
SW3	B-1
SW4	B-1
SW5	B-1
SW6	B-1
SW7	A-2
TP1	B-1
TP2	B-1

Serial No.	30231-	DXC-930 (J)
	10171-	DXC-930 (UC)
	10381-	DXC-930P (EK)
	50001-	DXC-930P (UC)
	10051-	DXC-960MD (UC)
	10171-	XC-009 (J)
	10061-	XC-009P (EK)

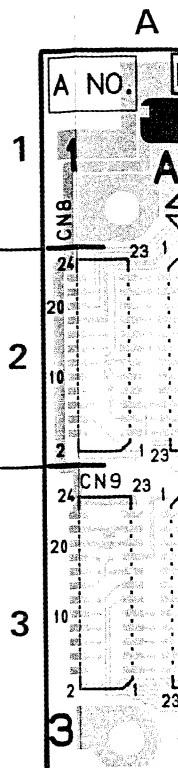


1-642-393-12 COMPONENT SIDE



1-642-393-12 SOLDERING SIDE

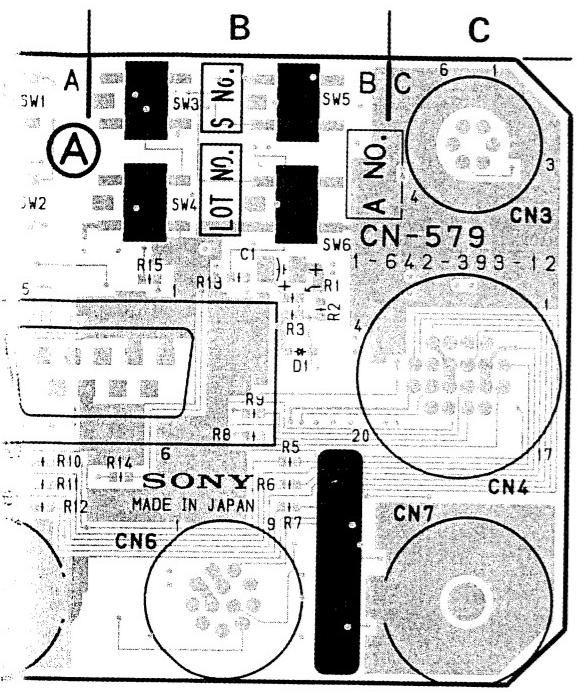
MB-380 BOAR



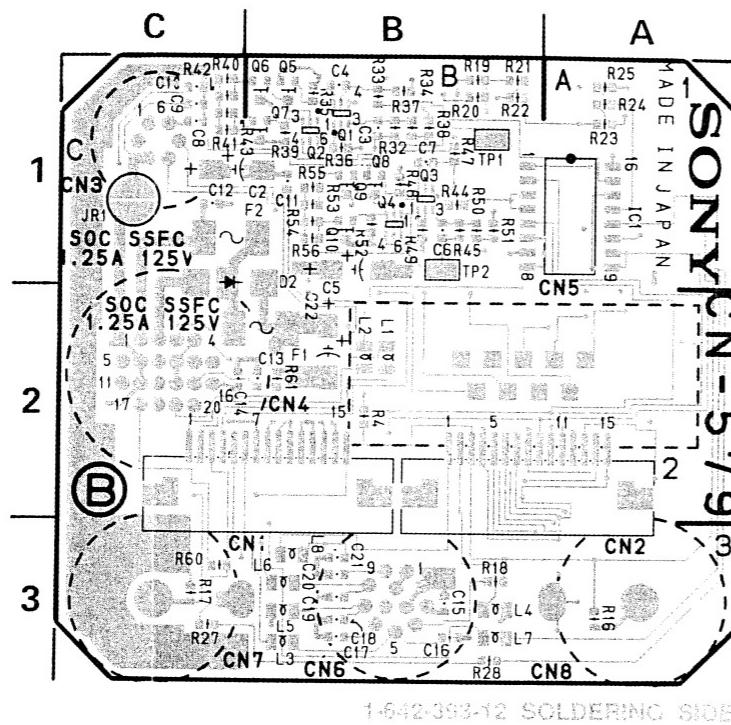
PA-133, PA-134, MB-380, CN-579, CN-580

PA-133, PA-134, MB-380, CN-579, CN-580

231-	DXC-930 (J)
171-	DXC-930 (UC)
381-	DXC-930P (EK)
1001-	DXC-930P (UC)
054-	DXC-960MD (UC)
171-	XC-009 (J)
061-	XC-009P (EK)



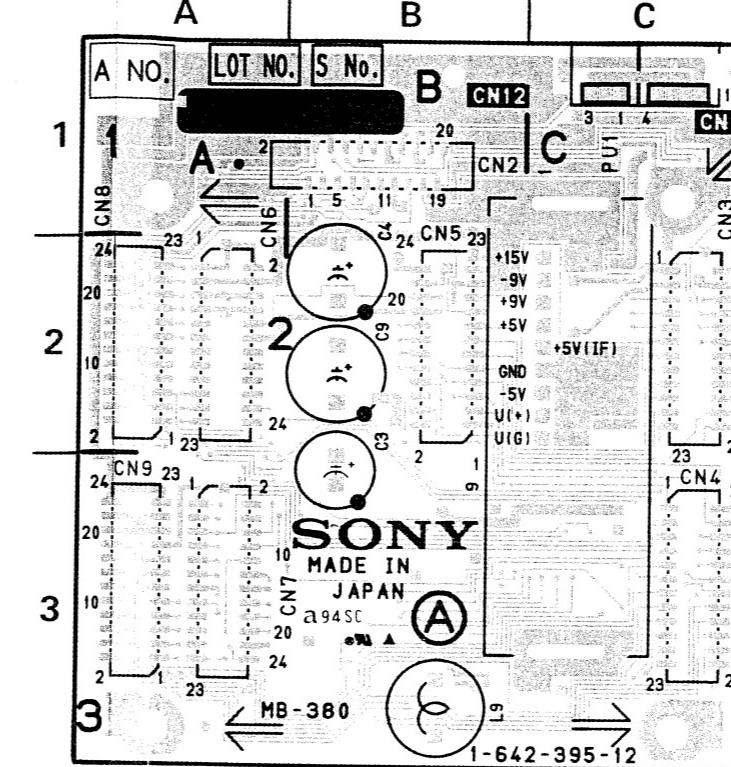
1-642-393-12 COMPONENT SIDE



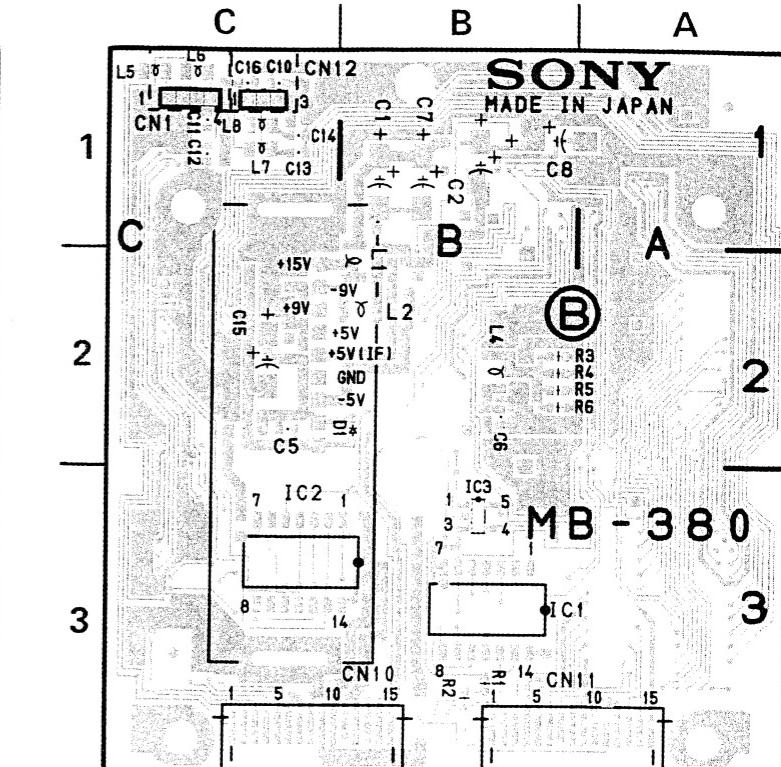
1-642-393-12 SOLDERING SIDE

MB-380 BOARD

Serial No. 30231-	DXC-930 (J)
10171-	DXC-930 (UC)
10381-	DXC-930P (EK)
50001-	DXC-930P (UC)
10051-	DXC-960MD (UC)
10171-	XC-009 (J)
10061-	XC-009P (EK)



1-642-395-12 COMPONENT SIDE



1-642-395-12 SOLDERING SIDE

MB-380 (1-642-395-12)

CN1	C-1
CN2	B-1
CN3	C-2
CN4	C-3
CN5	B-2
CN6	A-2
CN7	A-3
CN8	A-2
CN9	A-3
CN10	C-3
CN11	B-3
CN12	C-1
D1	B-2
IC1	B-3
IC2	C-3
IC3	B-3
PW1	B-2

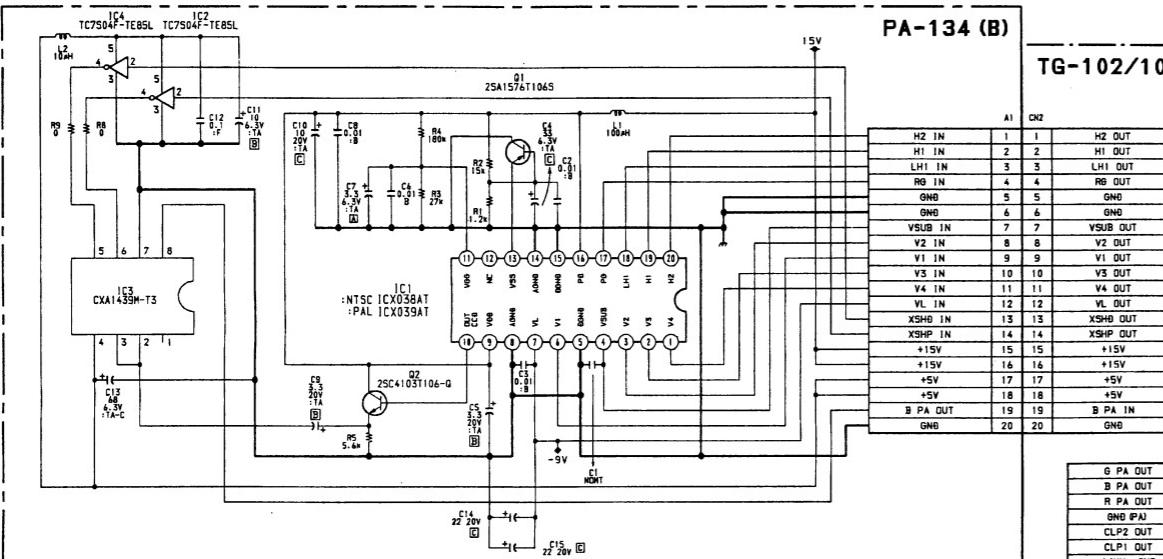
FRAME FRAME

FRAME WIRING

PA-133/134 BOARD

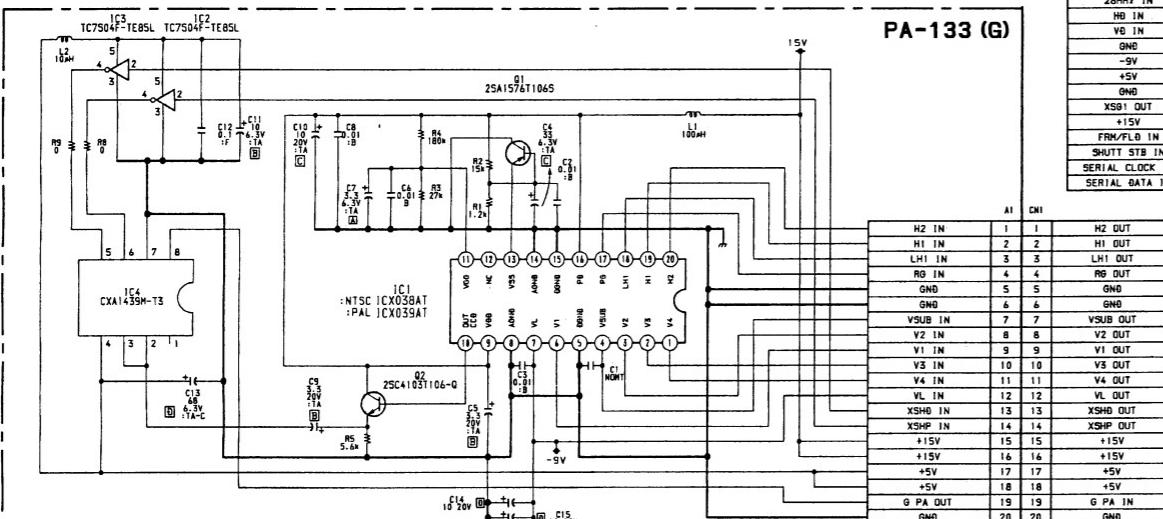
MB-380 BOARD

CN-580 BOARD

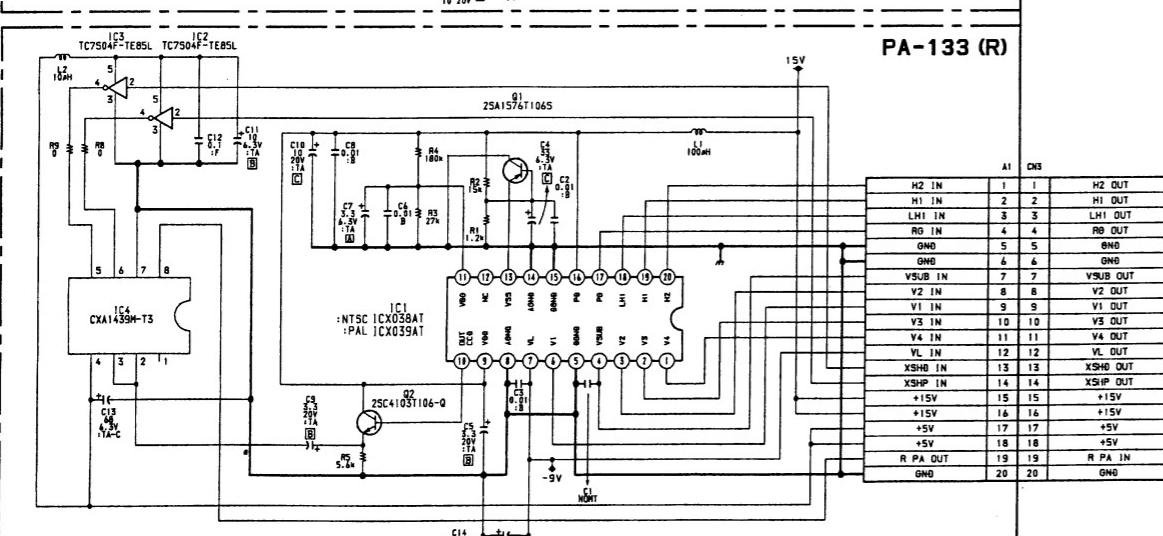


PA-134 (B)

TG-102/102P MB-380



PA-133 (G)



PA-133 (R)

NOTE		
MARK	CHANGE INFORMATION	SERIAL NO.
#1	L9 47uH → 68uH	DXC-930 LD 30101 and higher DXC-930 QD 10071 and higher DXC-930P EX0 10131 and higher DXC-930P QD 10071 and higher XC-009 LD 10071 and higher XC-009P LD 10001 and higher
#2	L3 (1uH) DELETED	DXC-930 LD 30231 and higher DXC-930 QD 10171 and higher DXC-930P EX0 10171 and higher DXC-930P QD 10051 and higher XC-009 LD 10171 and higher XC-009P LD 10061 and higher

R PA OUT

GND

20 20

GNB

TG-102/102P MB-380

A1 CN2

H2 IN

1 1

H2 OUT

2 2

H1 IN

3 3

LH1 OUT

4 4

R8 IN

5 5

GNB

6 6

GNB

7 7

VSUB OUT

8 8

V2 OUT

9 9

V1 IN

10 10

V3 IN

11 11

V4 OUT

12 12

VL OUT

13 13

XSHD OUT

14 14

XSHD OUT

15 15

+15V

16 16

+15V

17 17

+5V

18 18

+5V

19 19

B PA IN

20 20

GNB

TG-102/102P MB-380

A1 CN2

H2 IN

1 1

H2 OUT

2 2

H1 IN

3 3

LH1 OUT

4 4

R8 OUT

5 5

GNB

6 6

GNB

7 7

VSUB OUT

8 8

V2 OUT

9 9

V1 IN

10 10

V3 IN

11 11

V4 OUT

12 12

VL OUT

13 13

XSHD OUT

14 14

XSHD OUT

15 15

+15V

16 16

+15V

17 17

+5V

18 18

+5V

19 19

B PA IN

20 20

GNB

TG-102/102P MB-380

A1 CN2

H2 IN

1 1

H2 OUT

2 2

H1 IN

3 3

LH1 OUT

4 4

R8 OUT

5 5

GNB

6 6

GNB

7 7

VSUB OUT

8 8

V2 OUT

9 9

V1 IN

10 10

V3 IN

11 11

V4 OUT

12 12

VL OUT

13 13

XSHD OUT

14 14

XSHD OUT

15 15

+15V

16 16

+15V

17 17

+5V

18 18

+5V

19 19

B PA IN

20 20

GNB

TG-102/102P MB-380

A1 CN2

H2 IN

1 1

H2 OUT

2 2

H1 IN

3 3

LH1 OUT

4 4

R8 OUT

5 5

GNB

6 6

GNB

7 7

VSUB OUT

8 8

V2 OUT

9 9

V1 IN

10 10

V3 IN

11 11

V4 OUT

12 12

VL OUT

13 13

XSHD OUT

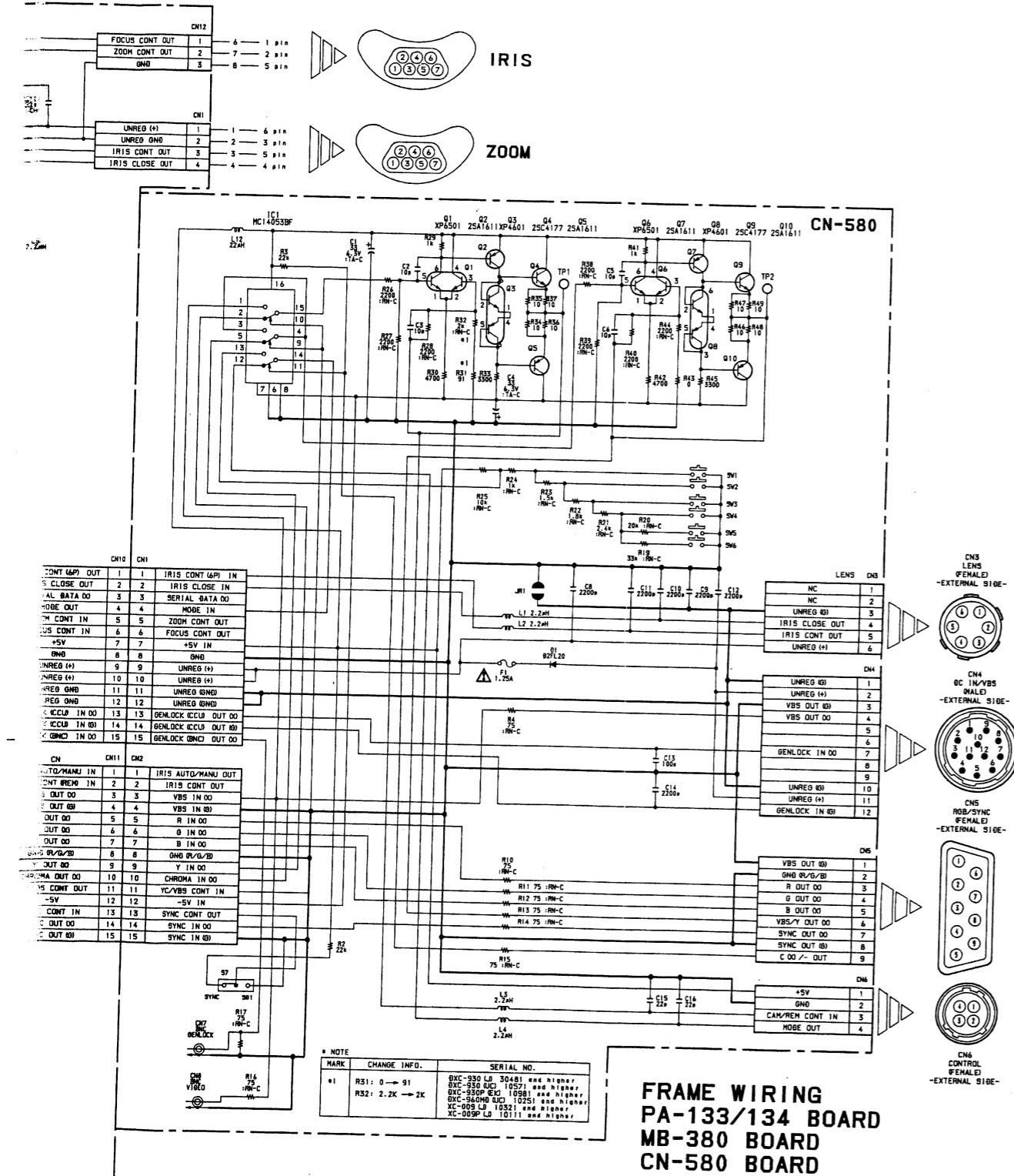
14 14

XSHD OUT

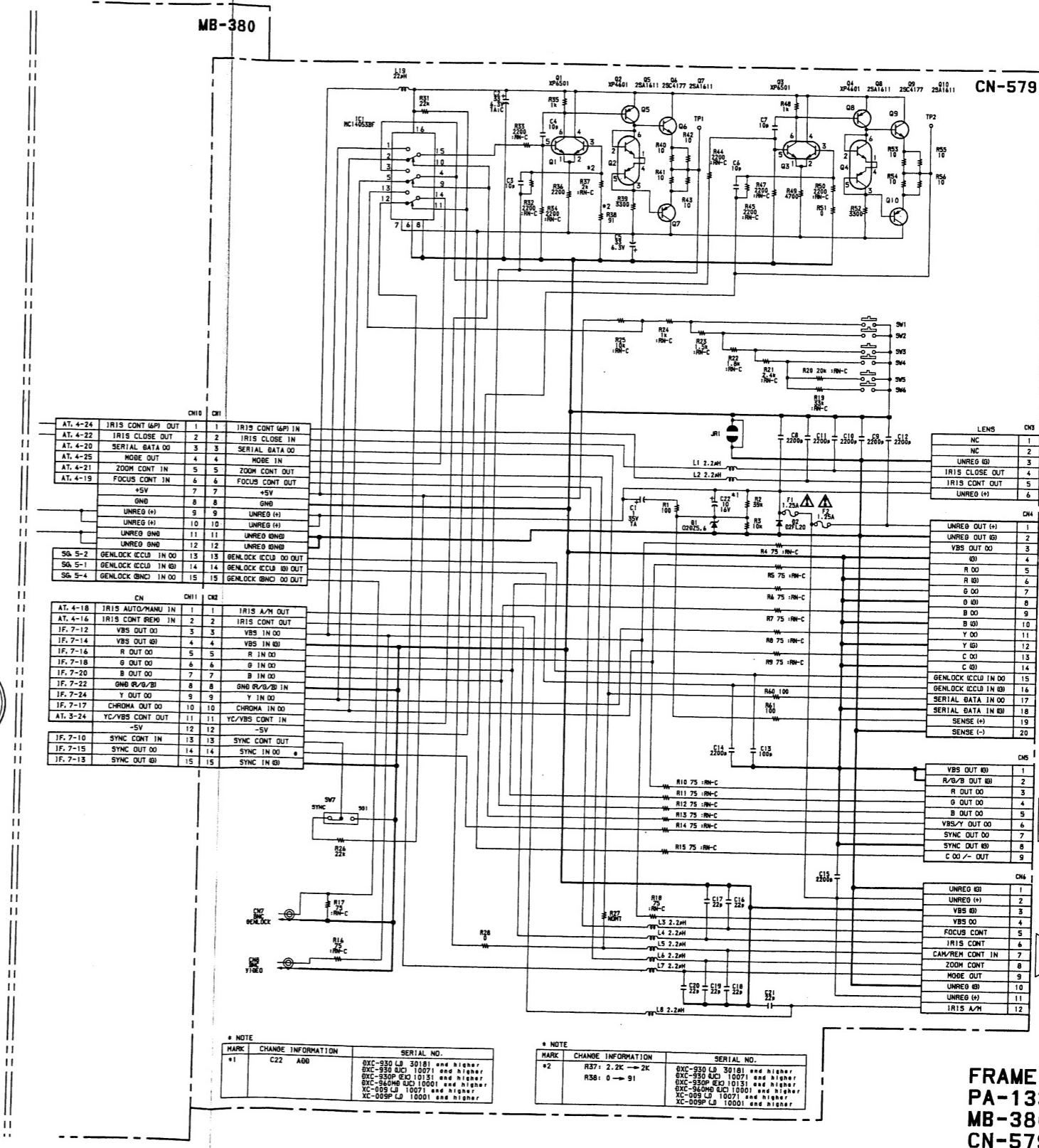
15 15

+15V

16 16



FRAME WIRING
PA-133/134 BOARD
MB-380 BOARD
CN-579 BOARD



**FRAME WIRING
PA-133/134 BOARD
MB-380 BOARD
CN-579 BOARD**

ĐXC-930 (UC)
ĐXC-930 (J)
ĐXC-930P (EK)
ĐXC-960MD (UC)

SECTION D SPARE PARTS

PARTS INFORMATION

1. Safety Related Component Warning

Components identified by shading marked with Δ on the schematic diagrams, exploded views and electrical spare parts list are critical to safe operation. Replace these components with Sony parts whose parts numbers appear as shown in this manual or in service manual supplements published by Sony.

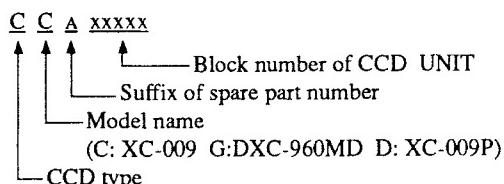
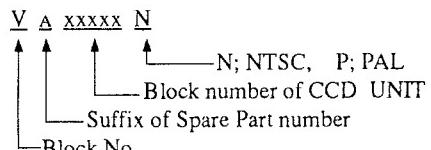
2. Replace Parts that are supplied from Sony Parts Center can sometimes have different shape and external appearance than what are actually used in equipment. This is due to "accommodating the improved parts and/or engineering changes" or "standardization of genuine parts."
 - This manual's exploded view and electrical spare parts lists are indicating the parts numbers of "the standardized genuine parts at present."
 - Regarding engineering parts and diagrams changes in our engineering department, refer to Sony service bulletins and service manual supplements.
3. The parts marked with "S" in the SP column of the exploded views and electrical spare parts list are normally required for routine service work. Orders for parts marked with "O" will be processed, but allow for additional delivery time.
4. Item with no parts number and/or no description are not stocked because they are seldom required for routine service.
5. All capacitors are in micro farads unless otherwise specified.
All inductors are in micro henried unless otherwise specified.
All resistors are in ohms.

CAMERA MODULE

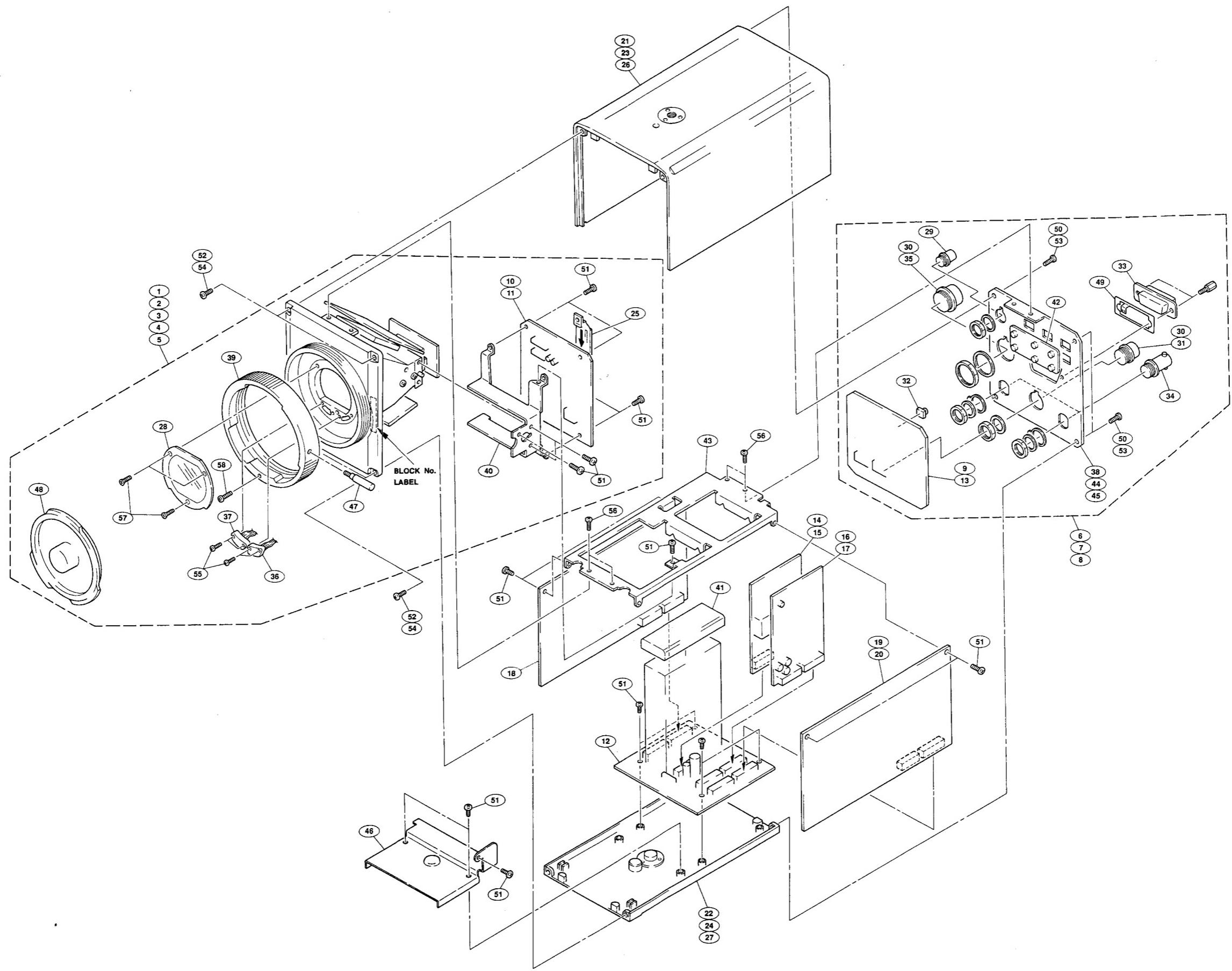
EXPLODED VIEW

No.	Part No.	SP Description	
1	A-7575-196-A	s CCD UNIT-C930 (N) (DXC-930)	*1
2	A-7575-197-A	s CCD UNIT-C930P(P) (DXC-930P)	*2
3	A-7575-198-A	s CCD UNIT-009(N) (XC-009)	*3
4	A-7575-203-A	s CCD UNIT-C930 (N) (DXC-960MD)	*4
5	A-7575-204-A	s CCD UNIT-009P(P) (XC-009P)	*5
6	A-8262-277-A	o PANEL ASSY, REAR (XC-009/009P)	
7	A-8262-282-A	o PANEL ASSY, REAR (DXC-930/930P)	
8	A-8262-486-A	o PANEL ASSY, REAR (DXC-960MD)	
9	A-8271-134-A	o MOUNTED CIRCUIT BOARD, CN-580 (XC-009/009P)	
10	A-8271-135-A	o MOUNTED CIRCUIT BOARD, TG-102 (DXC-930/960MD, XC-009)	
11	A-8271-137-A	o MOUNTED CIRCUIT BOARD, TG-102P (DXC-930P, XC-009P)	
12	A-8271-139-A	o MOUNTED CIRCUIT BOARD, MB-380	
13	A-8271-140-A	o MOUNTED CIRCUIT BOARD, CN-578 (DXC-930/930P/960MD)	
14	A-8271-141-A	o MOUNTED CIRCUIT BOARD, SG-194 (DXC-930/960MD, XC-009)	
15	A-8271-142-A	o MOUNTED CIRCUIT BOARD, SG-194P (DXC-930P, XC-009P)	
16	A-8271-143-A	o MOUNTED CIRCUIT BOARD, IF-354 (DXC-930/960MD, XC-009)	
17	A-8271-144-A	o MOUNTED CIRCUIT BOARD, IF-354P (DXC-930P, XC-009P)	
18	A-8271-145-A	o MOUNTED CIRCUIT BOARD, AT-69	
19	A-8271-146-A	o MOUNTED CIRCUIT BOARD, PR-158 (DXC-930/960MD, XC-009)	
20	A-8271-147-A	o MOUNTED CIRCUIT BOARD, PR-158P (DXC-930P, XC-009P)	
21	X-3166-543-3	o CASE ASSY (COMPO), UPPER (XC-009/009P)	
22	X-3166-544-2	o CASE ASSY (COMPO), LOWER (XC-009/009P)	
23	X-3166-546-3	o CASE ASSY (INST), UPPER (DXC-930/930P)	
24	X-3166-547-2	o CASE ASSY (INST), LOWER (DXC-930/930P)	
25	X-3166-548-1	o SPRING ASSY, TG RADIATION	
26	X-3166-701-2	o CASE ASSY (MD), UPPER (DXC-960MD)	
27	X-3166-702-1	o CASE ASSY (MD), LOWER (DXC-960MD)	
28	1-547-463-11	o FILTER UNIT, OPTICAL	
29	1-562-222-21	s CONNECTOR, 6P FEMALE "LENS"	
30	1-562-381-00	s CONNECTOR, 12P MALE "DC IN/REMOTE" (DXC-930/930P/960MD) "DC IN/VBS" (XC-009/009P)	
31	1-563-929-11	s CONNECTOR, 4P FEMALE "CONTROL" (XC-009/009P)	
32	1-571-787-11	s SWITCH, TACTILE "MENU" "DISPLAY"	
33	1-580-090-11	s CONNECTOR, D-SUB 9P "RGB/SYNC"	
34	1-580-724-21	s CONNECTOR, BNC "VIDEO OUT" "GENLOCK"	
35	1-691-629-11	s CONNECTOR, 20P MALE "CCU" (DXC-930/930P/960MD)	
36	1-949-642-11	o HARNESS (ZOOM)	
37	1-949-643-11	o HARNESS (IRIS)	
38	3-174-661-01	o PANEL (COMPO), REAR (XC-009/009P)	
39	3-174-668-01	o RING, MOUNT	
40	3-174-669-02	o BRACKET, TG	
41	3-174-670-01	s RUBBER, HEAT ELECTRIC	
42	3-174-672-01	o SHEET, REAR	
43	3-174-673-02	o STAY	
44	3-174-674-01	o PANEL (INST), REAR (DXC-930/930P)	
45	3-174-674-11	o PANEL (INST), REAR (DXC-960MD)	
46	3-176-677-01	o PLATE, SHIELD (DXC-930/930P/960MD, XC-009P)	
47	3-678-629-00	s LEVER, MOUNT	
48	3-699-144-01	s CAP, MOUNT	
49	3-737-536-01	o LUG, GROUND, CONNECTOR	
50	7-621-770-67	s SCREW +B 2.6X6	
51	7-621-772-18	s SCREW +B 2X4	
52	7-621-773-87	s SCREW +B 2.6X10	
53	7-621-773-95	s SCREW +B 2.6X6 (XC-009/009P)	
54	7-621-775-50	s SCREW +B 2.6X10 (XC-009/009P)	
55	7-627-450-98	s SCREW, PRECISION +K 1.7X5 TYPE1	
56	7-627-452-27	s SCREW, +K 2X4	
57	7-627-452-28	s SCREW, PRECISION +K 2X4	
58	7-627-552-58	s SCREW, PRECISION +P 1.7X5	
*1		CCD BLOCK NUMBER; V A xxxxx N	
*2		CCD BLOCK NUMBER; V A xxxxx P	
*3		CCD BLOCK NUMBER; CCA xxxxx	
*4		CCD BLOCK NUMBER; CGA xxxxx	
*5		CCD BLOCK NUMBER; CDA xxxxx	

How to read the CCD BLOCK NUMBER



CAMERA MODULE CAMERA MODULE

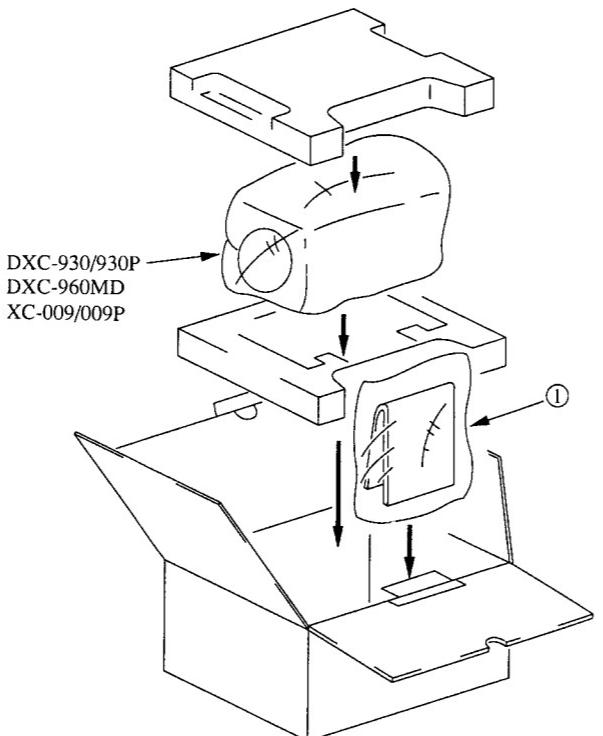


PACKING

SUPPLIED ACCESSORIES

Ref. No.
or Q'ty Part No. SP Description

- 1 3-754-756-03 s MANUAL, INSTRUCTION (XC-009/009P)
- ▲ 3-754-789-13 s MANUAL, INSTRUCTION (DXC-930/930P)
- ▲ 3-755-152-12 s MANUAL, INSTRUCTION (DXC-960MD)
- 3-795-581-21 o SAFEGUARD, IMPORTANT (DXC-930/960MD)



AT-69 BOARD

Ref. No.
or Q'ty Part No. SP Description

- 1pc A-8271-145-A o MOUNTED CIRCUIT BOARD, AT-69
- C1 1-135-210-11 s TANTALUM 4.7uF 20% 10V
- C2 1-135-210-11 s TANTALUM 4.7uF 20% 10V
- C3 1-135-179-21 s TANTALUM 2.2uF 20% 16V
- C4 1-135-208-11 s TANTALUM 1uF 20% 10V
- C5 1-135-210-11 s TANTALUM 4.7uF 20% 10V
- C6 1-135-208-11 s TANTALUM 1uF 20% 10V
- C7 1-126-391-11 s ELECT, CHIP 47uF 20% 6.3V
- C8 1-126-396-11 s ELECT, CHIP 47uF 20% 16V
- C9 1-164-357-11 s CERAMIC 1000PF 5% 50V
- C10 1-135-208-11 s TANTALUM 1uF 20% 10V
- C11 1-135-179-21 s TANTALUM 2.2uF 20% 16V
- C12 1-135-210-11 s TANTALUM 4.7uF 20% 10V
- C13 1-135-210-11 s TANTALUM 4.7uF 20% 10V
- C14 1-164-357-11 s CERAMIC 1000PF 5% 50V
- C15 1-135-208-11 s TANTALUM 1uF 20% 10V
- C16 1-135-208-11 s TANTALUM 1uF 20% 10V
- C17 1-135-210-11 s TANTALUM 4.7uF 20% 10V
- C18 1-135-210-11 s TANTALUM 4.7uF 20% 10V
- C19 1-135-208-11 s TANTALUM 1uF 20% 10V
- C20 1-135-210-11 s TANTALUM 4.7uF 20% 10V
- C21 1-135-210-11 s TANTALUM 4.7uF 20% 10V
- C22 1-164-357-11 s CERAMIC 1000PF 5% 50V
- C23 1-135-210-11 s TANTALUM 4.7uF 20% 10V
- C24 1-135-210-11 s TANTALUM 4.7uF 20% 10V
- C25 1-135-208-11 s TANTALUM 1uF 20% 10V
- C26 1-164-357-11 s CERAMIC 1000PF 5% 50V
- C27 1-135-210-11 s TANTALUM 4.7uF 20% 10V
- C28 1-135-217-21 s TANTALUM 15uF 20% 6.3
- C29 1-135-190-21 s TANTALUM 0.1uF 20% 20V
- C31 1-126-391-11 s ELECT, CHIP 47uF 20% 6.3V
- C32 1-135-208-11 s TANTALUM 1uF 20% 10V
- C33 1-162-957-11 s CERAMIC 220PF 5% 50V
- C34 1-135-155-21 s TANTAL CHIP 4.7uF 10% 16V
- C35 1-135-166-21 s TANTALUM, CHIP 47uF 10% 10V
- C36 1-135-167-21 s TANTALUM, CHIP 68uF 20% 6.3V
- C37 1-135-208-11 s TANTALUM 1uF 20% 10V
- C38 1-135-210-11 s TANTALUM 4.7uF 20% 10V
- C39 1-164-360-11 s CERAMIC 0.1uF 16V
- C40 1-135-161-21 s TANTALUM, CHIP 22uF 10% 10V
- C41 1-135-161-21 s TANTALUM, CHIP 22uF 10% 10V
- C42 1-162-919-11 s CERAMIC, CHIP 22PF 5% 50V
- C43 1-162-921-11 s CERAMIC, CHIP 33PF 5% 50V
- C44 1-162-921-11 s CERAMIC, CHIP 33PF 5% 50V
- C45 1-162-919-11 s CERAMIC, CHIP 22PF 5% 50V
- C46 1-135-208-11 s TANTALUM 1uF 20% 10V
- C47 1-135-162-21 s TANTALUM, CHIP 33uF 10% 6.3V
- C48 1-135-210-11 s TANTALUM 4.7uF 20% 10V
- C49 1-164-357-11 s CERAMIC 1000PF 5% 50V
- C50 1-162-927-11 s CERAMIC, CHIP 100PF 5% 50V
- C51 1-162-927-11 s CERAMIC, CHIP 100PF 5% 50V
- C52 1-135-164-21 s TANTALUM, CHIP 22uF 20% 10V
- C53 1-135-179-21 s TANTALUM 2.2uF 20% 16V
- C54 1-135-210-11 s TANTALUM 4.7uF 20% 10V
- CN1 1-569-607-11 s CONNECTOR, BOARD TO BOARD 24P
- CN2 1-569-607-11 s CONNECTOR, BOARD TO BOARD 24P
- D1 8-719-017-08 s DIODE 02DZ5.6-TPHR3

(AT-69 BOARD)

Ref. No.
or Q'ty Part No. SP Description

- D2 8-719-800-76 s DIODE 1SS226
- D3 8-719-800-76 s DIODE 1SS226
- D4 8-719-123-82 s DIODE 1SS303
- D5 8-719-123-82 s DIODE 1SS303
- IC1 8-759-906-54 s IC TL064CNS
- IC2 8-759-300-71 s IC HD14053BFP
- IC3 8-759-242-64 s IC TC4W53F
- IC5 8-759-009-06 s IC MC14052BF
- IC7 8-759-030-16 s IC MC34182M
- IC8 8-759-906-54 s IC TL064CNS
- IC9 8-759-987-41 s IC SN74HC4066NS
- IC10 8-759-011-65 s IC MC74HC4053F
- IC11 8-759-908-92 s IC TL084CNS
- IC12 8-759-635-27 s IC M62352GP-E1
- IC13 8-759-009-06 s IC MC14052BF
- IC14 8-759-009-05 s IC MC14051BF
- IC15 8-759-300-71 s IC HD14053BFP
- IC16 8-759-300-71 s IC HD14053BFP
- IC17 8-759-209-57 s IC TC4S69F
- IC18 8-759-209-97 s IC TC4S81F
- IC19 8-759-209-97 s IC TC4S81F
- IC20 8-759-078-51 s IC HD63B05Y0E64F
- IC21 8-759-052-64 s IC M6M80011AHP
- IC22 8-759-112-72 s IC UPD6142G-101
- IC23 8-759-635-27 s IC M62352GP-E1
- IC24 8-759-030-16 s IC MC34182M
- IC25 8-759-946-03 s IC S-8054ALR-LN-S
- L1 1-412-030-11 s INDUCTOR CHIP 22uH
- L3 1-412-030-11 s INDUCTOR CHIP 22uH
- L4 1-412-030-11 s INDUCTOR CHIP 22uH
- L5 1-408-786-21 s INDUCTOR CHIP 56uH
- Q1 8-729-117-32 s TRANSISTOR 2SC4177
- Q2 8-729-427-83 s TRANSISTOR XP6501
- Q3 8-729-117-32 s TRANSISTOR 2SC4177
- Q4 8-729-427-80 s TRANSISTOR XP6401
- Q5 8-729-117-32 s TRANSISTOR 2SC4177
- Q6 8-729-117-32 s TRANSISTOR 2SC4177
- Q7 8-729-427-83 s TRANSISTOR XP6501
- Q8 8-729-117-32 s TRANSISTOR 2SC4177
- Q9 8-729-117-32 s TRANSISTOR 2SC4177
- Q10 8-729-427-83 s TRANSISTOR XP6501
- Q11 8-729-117-32 s TRANSISTOR 2SC4177
- Q12 8-729-117-32 s TRANSISTOR 2SC4177
- Q13 8-729-427-83 s TRANSISTOR XP6501
- Q14 8-729-117-32 s TRANSISTOR 2SC4177
- Q15 8-729-117-32 s TRANSISTOR 2SC4177
- Q16 8-729-117-16 s TRANSISTOR 2SA1611-M6
- Q17 8-729-117-16 s TRANSISTOR 2SA1611-M6
- Q18 8-729-117-32 s TRANSISTOR 2SC4177
- Q19 8-729-926-19 s TRANSISTOR 2SC4103-Q
- Q20 8-729-117-32 s TRANSISTOR 2SC4177
- Q21 8-729-427-83 s TRANSISTOR XP6501
- Q22 8-729-117-16 s TRANSISTOR 2SA1611-M6
- Q23 8-729-117-32 s TRANSISTOR 2SC4177
- Q24 8-729-117-16 s TRANSISTOR 2SA1611-M6
- Q25 8-729-117-32 s TRANSISTOR 2SC4177
- R1 1-216-836-11 s METAL, CHIP 18K 5% 1/16W
- R2 1-216-833-11 s METAL, CHIP 10K 5% 1/16W

(AT-69 BOARD)

Ref. No.
or Q'ty Part No. SP Description

R3 1-216-837-11 s METAL, CHIP 22K 5% 1/16W
 R4 1-216-845-11 s METAL, CHIP 100K 5% 1/16W
 R5 1-216-845-11 s METAL, CHIP 100K 5% 1/16W
 R6 1-216-833-11 s METAL, CHIP 10K 5% 1/16W
 R7 1-216-857-11 s METAL, CHIP 1M 5% 1/16W

R8 1-216-827-11 s METAL, CHIP 3.3K 5% 1/16W
 R9 1-216-833-11 s METAL, CHIP 10K 5% 1/16W
 R10 1-216-829-11 s METAL, CHIP 4.7K 5% 1/16W
 R11 1-216-819-11 s METAL, CHIP 680 5% 1/16W
 R12 1-216-829-11 s METAL, CHIP 4.7K 5% 1/16W

R13 1-216-845-11 s METAL, CHIP 100K 5% 1/16W
 R15 1-216-832-11 s METAL, CHIP 8.2K 5% 1/16W
 R16 1-216-841-11 s METAL, CHIP 47K 5% 1/16W
 R17 1-216-825-11 s METAL, CHIP 2.2K 5% 1/16W
 R18 1-216-857-11 s METAL, CHIP 1M 5% 1/16W

R19 1-216-841-11 s METAL, CHIP 47K 5% 1/16W
 R20 1-216-837-11 s METAL, CHIP 22K 5% 1/16W
 R21 1-216-834-11 s METAL, CHIP 12K 5% 1/16W
 R22 1-216-825-11 s METAL, CHIP 2.2K 5% 1/16W
 R23 1-216-809-11 s METAL, CHIP 100 5% 1/16W

R24 1-216-833-11 s METAL, CHIP 10K 5% 1/16W
 R25 1-218-714-11 s METAL 8.2K 0.50% 1/16W
 R26 1-216-830-11 s METAL, CHIP 5.6K 5% 1/16W
 R27 1-216-833-11 s METAL, CHIP 10K 5% 1/16W
 R29 1-216-821-11 s METAL, CHIP 1K 5% 1/16W

R30 1-218-716-11 s METAL 10K 0.50% 1/16W
 R32 1-216-825-11 s METAL, CHIP 2.2K 5% 1/16W
 R33 1-216-821-11 s METAL, CHIP 1K 5% 1/16W
 R34 1-216-813-11 s METAL, CHIP 220 5% 1/16W
 R35 1-216-817-11 s METAL, CHIP 470 5% 1/16W

R37 1-216-830-11 s METAL, CHIP 5.6K 5% 1/16W
 R38 1-216-833-11 s METAL, CHIP 10K 5% 1/16W
 R39 1-218-714-11 s METAL 8.2K 0.50% 1/16W
 R40 1-216-829-11 s METAL, CHIP 4.7K 5% 1/16W
 R41 1-216-833-11 s METAL, CHIP 10K 5% 1/16W

R42 1-216-821-11 s METAL, CHIP 1K 5% 1/16W
 R44 1-216-833-11 s METAL, CHIP 10K 5% 1/16W
 R45 1-216-864-11 s METAL, CHIP 0-OHM
 R46 1-216-834-11 s METAL, CHIP 12K 5% 1/16W
 R48 1-218-716-11 s METAL 10K 0.50% 1/16W

R49 1-218-724-11 s METAL 22K 0.50% 1/16W
 R50 1-216-833-11 s METAL, CHIP 10K 5% 1/16W
 R51 1-216-830-11 s METAL, CHIP 5.6K 5% 1/16W
 R52 1-216-825-11 s METAL, CHIP 2.2K 5% 1/16W
 R53 1-216-813-11 s METAL, CHIP 220 5% 1/16W

R54 1-216-833-11 s METAL, CHIP 10K 5% 1/16W
 R55 1-216-834-11 s METAL, CHIP 12K 5% 1/16W
 R57 1-216-821-11 s METAL, CHIP 1K 5% 1/16W
 R58 1-216-829-11 s METAL, CHIP 4.7K 5% 1/16W
 R59 1-216-833-11 s METAL, CHIP 10K 5% 1/16W

R60 1-218-724-11 s METAL 22K 0.50% 1/16W
 R61 1-216-833-11 s METAL, CHIP 10K 5% 1/16W
 R62 1-218-714-11 s METAL 8.2K 0.50% 1/16W
 R63 1-216-833-11 s METAL, CHIP 10K 5% 1/16W
 R65 1-216-833-11 s METAL, CHIP 10K 5% 1/16W

R66 1-216-830-11 s METAL, CHIP 5.6K 5% 1/16W
 R67 1-216-821-11 s METAL, CHIP 1K 5% 1/16W
 R68 1-216-833-11 s METAL, CHIP 10K 5% 1/16W
 R69 1-218-716-11 s METAL 10K 0.50% 1/16W

(AT-69 BOARD)

Ref. No.
or Q'ty Part No. SP Description

R70 1-216-829-11 s METAL, CHIP 4.7K 5% 1/16W
 R71 1-216-813-11 s METAL, CHIP 220 5% 1/16W
 R72 1-216-801-11 s METAL 22 0.50% 1/16W
 R74 1-216-825-11 s METAL, CHIP 2.2K 5% 1/16W
 R75 1-216-834-11 s METAL, CHIP 12K 5% 1/16W

R76 1-216-841-11 s METAL, CHIP 47K 5% 1/16W
 R77 1-216-821-11 s METAL, CHIP 1K 5% 1/16W
 R78 1-218-725-11 s METAL 24K 0.50% 1/16W
 R79 1-216-833-11 s METAL, CHIP 10K 5% 1/16W
 R80 1-216-833-11 s METAL, CHIP 10K 5% 1/16W

R82 1-216-821-11 s METAL, CHIP 1K 5% 1/16W
 R84 1-216-845-11 s METAL, CHIP 100K 5% 1/16W
 R85 1-216-845-11 s METAL, CHIP 100K 5% 1/16W
 R86 1-216-837-11 s METAL, CHIP 22K 5% 1/16W
 R87 1-216-829-11 s METAL, CHIP 4.7K 5% 1/16W

R88 1-216-827-11 s METAL, CHIP 3.3K 5% 1/16W
 R89 1-218-883-11 s METAL, CHIP 33K 0.50% 1/16W
 R90 1-216-833-11 s METAL, CHIP 10K 5% 1/16W
 R92 1-218-740-11 s METAL 100K 0.50% 1/16W
 R93 1-216-841-11 s METAL, CHIP 47K 5% 1/16W

R94 1-216-841-11 s METAL, CHIP 47K 5% 1/16W
 R95 1-216-832-11 s METAL, CHIP 8.2K 5% 1/16W
 R96 1-216-833-11 s METAL, CHIP 10K 5% 1/16W
 R97 1-216-832-11 s METAL, CHIP 8.2K 5% 1/16W
 R98 1-216-829-11 s METAL, CHIP 4.7K 5% 1/16W

R99 1-216-853-11 s METAL, CHIP 470K 5% 1/16W
 R100 1-216-833-11 s METAL, CHIP 10K 5% 1/16W
 R101 1-216-845-11 s METAL, CHIP 100K 5% 1/16W
 R102 1-216-841-11 s METAL, CHIP 47K 5% 1/16W
 R103 1-216-829-11 s METAL, CHIP 4.7K 5% 1/16W

R104 1-216-827-11 s METAL, CHIP 3.3K 5% 1/16W
 R105 1-216-827-11 s METAL, CHIP 3.3K 5% 1/16W
 R106 1-216-829-11 s METAL, CHIP 4.7K 5% 1/16W
 R107 1-216-830-11 s METAL, CHIP 5.6K 5% 1/16W
 R108 1-216-809-11 s METAL, CHIP 100 5% 1/16W

R109 1-216-809-11 s METAL, CHIP 100 5% 1/16W
 R110 1-216-833-11 s METAL, CHIP 10K 5% 1/16W
 R114 1-216-841-11 s METAL, CHIP 47K 5% 1/16W
 R115 1-216-845-11 s METAL, CHIP 100K 5% 1/16W
 R116 1-216-836-11 s METAL, CHIP 18K 5% 1/16W

R117 1-216-842-11 s METAL, CHIP 56K 5% 1/16W
 R118 1-216-834-11 s METAL, CHIP 12K 5% 1/16W
 R119 1-216-838-11 s METAL, CHIP 27K 5% 1/16W
 R120 1-216-833-11 s METAL, CHIP 10K 5% 1/16W
 R121 1-216-821-11 s METAL, CHIP 1K 5% 1/16W

R122 1-216-836-11 s METAL, CHIP 18K 5% 1/16W
 R123 1-216-841-11 s METAL, CHIP 47K 5% 1/16W
 R124 1-216-834-11 s METAL, CHIP 12K 5% 1/16W
 R125 1-216-842-11 s METAL, CHIP 56K 5% 1/16W
 R126 1-216-821-11 s METAL, CHIP 1K 5% 1/16W

R127 1-216-833-11 s METAL, CHIP 10K 5% 1/16W
 R128 1-216-833-11 s METAL, CHIP 10K 5% 1/16W
 R129 1-216-838-11 s METAL, CHIP 27K 5% 1/16W
 R130 1-216-809-11 s METAL, CHIP 100 5% 1/16W
 R131 1-216-841-11 s METAL, CHIP 47K 5% 1/16W

R132 1-216-809-11 s METAL, CHIP 100 5% 1/16W
 R133 1-216-809-11 s METAL, CHIP 100 5% 1/16W
 R134 1-216-809-11 s METAL, CHIP 100 5% 1/16W
 R135 1-216-809-11 s METAL, CHIP 100 5% 1/16W

(AT-69 BOARD)

Ref. No. or Q'ty	Part No.	SP Description
R136	1-216-837-11	S METAL, CHIP 22K 5% 1/16W
R137	1-216-841-11	S METAL, CHIP 47K 5% 1/16W
R138	1-216-845-11	S METAL, CHIP 100K 5% 1/16W
R139	1-216-845-11	S METAL, CHIP 100K 5% 1/16W
R140	1-216-845-11	S METAL, CHIP 100K 5% 1/16W
R141	1-216-832-11	S METAL, CHIP 8.2K 5% 1/16W
R142	1-216-809-11	S METAL, CHIP 100 5% 1/16W
R143	1-216-830-11	S METAL, CHIP 5.6K 5% 1/16W
R145	1-216-864-11	S METAL, CHIP 0-OHM
R146	1-216-864-11	S METAL, CHIP 0-OHM
R147	1-216-845-11	S METAL, CHIP 100K 5% 1/16W
RB1	1-231-387-00	S COMPOSITION CIRCUIT BLOCK
SW1	1-571-120-11	S SWITCH, SLIDE
SW2	1-571-249-11	S SWITCH, SLIDE
X1	1-567-192-11	S RESONATOR, CERAMIC 4.00MHz

CN-579 BOARD (For DXC-930/930P/960MD)

Ref. No. or Q'ty	Part No.	SP Description
1pc	A-8271-140-A o	OUNTED CIRCUIT BOARD, CN-579 (DXC-930/930P/960MD)
C1	1-135-076-21	S TANTALUM, CHIP 1uF 10% 35V
C2	1-135-162-21	S TANTALUM, CHIP 33uF 10% 6.3V
C3	1-162-915-11	S CERAMIC, CHIP 10PF 5PF 50V
C4	1-162-915-11	S CERAMIC, CHIP 10PF 5PF 50V
C5	1-135-162-21	S TANTALUM, CHIP 33uF 10% 6.3V
C6	1-162-915-11	S CERAMIC, CHIP 10PF 5PF 50V
C7	1-162-915-11	S CERAMIC, CHIP 10PF 5PF 50V
C8	1-162-966-11	S CERAMIC, CHIP 0.0022uF 10% 50V
C9	1-162-966-11	S CERAMIC, CHIP 0.0022uF 10% 50V
C10	1-162-966-11	S CERAMIC, CHIP 0.0022uF 10% 50V
C11	1-162-966-11	S CERAMIC, CHIP 0.0022uF 10% 50V
C12	1-162-966-11	S CERAMIC, CHIP 0.0022uF 10% 50V
C13	1-162-927-11	S CERAMIC, CHIP 100PF 5% 50V
C14	1-162-966-11	S CERAMIC, CHIP 0.0022uF 10% 50V
C15	1-162-966-11	S CERAMIC, CHIP 0.0022uF 10% 50V
C16	1-162-919-11	S CERAMIC, CHIP 22PF 5% 50V
C17	1-162-919-11	S CERAMIC, CHIP 22PF 5% 50V
C18	1-162-919-11	S CERAMIC, CHIP 22PF 5% 50V
C19	1-162-919-11	S CERAMIC, CHIP 22PF 5% 50V
C20	1-162-919-11	S CERAMIC, CHIP 22PF 5% 50V
C21	1-162-919-11	S CERAMIC, CHIP 22PF 5% 50V
C22	1-135-159-21	S TANTALUM, CHIP 10uF 10% 20V
CN1	1-566-531-11	S CONNECTOR, FPC (ZIF) 15P
CN2	1-566-531-11	S CONNECTOR, FPC (ZIF) 15P
D1	8-719-017-08	S DIODE O2DZ5.6-TPHR3
D2	8-719-510-30	S DIODE D2FL20
F1	▲ 1-576-212-21	S FUSE, CHIP
F2	▲ 1-576-212-21	S FUSE, CHIP
IC1	8-759-300-71	S IC HD14053BFP
L1	1-410-997-31	S INDUCTOR CHIP 2.2uH
L2	1-410-997-31	S INDUCTOR CHIP 2.2uH
L3	1-410-997-31	S INDUCTOR CHIP 2.2uH
L4	1-410-997-31	S INDUCTOR CHIP 2.2uH
L5	1-410-997-31	S INDUCTOR CHIP 2.2uH
L6	1-410-997-31	S INDUCTOR CHIP 2.2uH
L7	1-410-997-31	S INDUCTOR CHIP 2.2uH
L8	1-410-997-31	S INDUCTOR CHIP 2.2uH
L19	1-408-781-00	S INDUCTOR CHIP 22uH
Q1	8-729-427-83	S TRANSISTOR XP6501
Q2	8-729-427-74	S TRANSISTOR XP4601
Q3	8-729-427-83	S TRANSISTOR XP6501
Q4	8-729-427-74	S TRANSISTOR XP4601
Q5	8-729-117-16	S TRANSISTOR 2SA1611-M6
Q6	8-729-117-32	S TRANSISTOR 2SC4177
Q7	8-729-117-16	S TRANSISTOR 2SA1611-M6
Q8	8-729-117-16	S TRANSISTOR 2SA1611-M6
Q9	8-729-117-32	S TRANSISTOR 2SC4177
Q10	8-729-117-16	S TRANSISTOR 2SA1611-M6
R1	1-216-809-11	S METAL, CHIP 100 5% 1/16W
R2	1-216-840-11	S METAL, CHIP 39K 5% 1/16W
R3	1-216-833-11	S METAL, CHIP 10K 5% 1/16W
R4	1-218-285-11	S METAL, CHIP 75 5% 1/16W
R5	1-218-285-11	S METAL, CHIP 75 5% 1/16W

(CN-579 BOARD)

Ref. No.
or Q'ty Part No. SP Description

R6 1-218-285-11 s METAL, CHIP 75 5% 1/16W
 R7 1-218-285-11 s METAL, CHIP 75 5% 1/16W
 R8 1-218-285-11 s METAL, CHIP 75 5% 1/16W
 R9 1-218-285-11 s METAL, CHIP 75 5% 1/16W
 R10 1-218-285-11 s METAL, CHIP 75 5% 1/16W
 R11 1-218-285-11 s METAL, CHIP 75 5% 1/16W
 R12 1-218-285-11 s METAL, CHIP 75 5% 1/16W
 R13 1-218-285-11 s METAL, CHIP 75 5% 1/16W
 R14 1-218-285-11 s METAL, CHIP 75 5% 1/16W
 R15 1-218-285-11 s METAL, CHIP 75 5% 1/16W
 R16 1-218-285-11 s METAL, CHIP 75 5% 1/16W
 R17 1-218-285-11 s METAL, CHIP 75 5% 1/16W
 R18 1-218-285-11 s METAL, CHIP 75 5% 1/16W
 R19 1-218-883-11 s METAL, CHIP 33K 0.50% 1/16W
 R20 1-218-723-11 s METAL 20K 0.50% 1/16W
 R21 1-218-701-11 s METAL 2.4K 0.50% 1/16W
 R22 1-218-698-11 s METAL 1.8K 0.50% 1/16W
 R23 1-216-823-11 s METAL, CHIP 1.5K 5% 1/16W
 R24 1-216-821-11 s METAL, CHIP 1K 5% 1/16W
 R25 1-218-716-11 s METAL 10K 0.50% 1/16W
 R26 1-216-837-11 s METAL, CHIP 22K 5% 1/16W
 R28 1-216-864-11 s METAL, CHIP 0-OHM
 R31 1-216-837-11 s METAL, CHIP 22K 5% 1/16W
 R32 1-218-700-11 s METAL 2.2K 0.50% 1/16W
 R33 1-218-700-11 s METAL 2.2K 0.50% 1/16W
 R34 1-218-700-11 s METAL 2.2K 0.50% 1/16W
 R35 1-216-821-11 s METAL, CHIP 1K 5% 1/16W
 R36 1-216-825-11 s METAL, CHIP 2.2K 5% 1/16W
 R37 1-218-271-11 s METAL 2K 0.50% 1/16W
 R38 1-218-286-11 s METAL, CHIP 91 0.50% 1/16W
 R39 1-216-827-11 s METAL, CHIP 3.3K 5% 1/16W
 R40 1-216-797-11 s METAL, CHIP 10 5% 1/16W
 R41 1-216-797-11 s METAL, CHIP 10 5% 1/16W
 R42 1-216-797-11 s METAL, CHIP 10 5% 1/16W
 R43 1-216-797-11 s METAL, CHIP 10 5% 1/16W
 R44 1-218-700-11 s METAL 2.2K 0.50% 1/16W
 R45 1-218-700-11 s METAL 2.2K 0.50% 1/16W
 R47 1-218-700-11 s METAL 2.2K 0.50% 1/16W
 R48 1-216-821-11 s METAL, CHIP 1K 5% 1/16W
 R49 1-216-829-11 s METAL, CHIP 4.7K 5% 1/16W
 R50 1-218-700-11 s METAL 2.2K 0.50% 1/16W
 R51 1-216-864-11 s METAL, CHIP 0-OHM
 R52 1-216-827-11 s METAL, CHIP 3.3K 5% 1/16W
 R53 1-216-797-11 s METAL, CHIP 10 5% 1/16W
 R54 1-216-797-11 s METAL, CHIP 10 5% 1/16W
 R55 1-216-797-11 s METAL, CHIP 10 5% 1/16W
 R56 1-216-797-11 s METAL, CHIP 10 5% 1/16W
 R60 1-216-809-11 s METAL, CHIP 100 5% 1/16W
 R61 1-216-809-11 s METAL, CHIP 100 5% 1/16W
 SW1 1-571-787-11 s SWITCH, TACTILE
 SW2 1-571-787-11 s SWITCH, TACTILE
 SW3 1-571-787-11 s SWITCH, TACTILE
 SW4 1-571-787-11 s SWITCH, TACTILE
 SW5 1-571-787-11 s SWITCH, TACTILE
 SW6 1-571-787-11 s SWITCH, TACTILE
 SW7 1-571-120-11 s SWITCH, SLIDE

CN-580 BOARD (For XC-009/009P)

Ref. No.
or Q'ty Part No. SP Description

1pc A-8271-134-A o MOUNTED CIRCUIT BOARD, CN-580
 (XC-009/009P)
 C1 1-135-162-21 s TANTALUM, CHIP 33uF 10% 6.3V
 C2 1-162-915-11 s CERAMIC, CHIP 10PF 5PF 50V
 C3 1-162-915-11 s CERAMIC, CHIP 10PF 5PF 50V
 C4 1-135-162-21 s TANTALUM, CHIP 33uF 10% 6.3V
 C5 1-162-915-11 s CERAMIC, CHIP 10PF 5PF 50V
 C6 1-162-915-11 s CERAMIC, CHIP 10PF 5PF 50V
 C8 1-162-966-11 s CERAMIC, CHIP 0.0022uF 10% 50V
 C9 1-162-966-11 s CERAMIC, CHIP 0.0022uF 10% 50V
 C10 1-162-966-11 s CERAMIC, CHIP 0.0022uF 10% 50V
 C11 1-162-966-11 s CERAMIC, CHIP 0.0022uF 10% 50V
 C12 1-162-966-11 s CERAMIC, CHIP 0.0022uF 10% 50V
 C13 1-162-927-11 s CERAMIC, CHIP 100PF 5% 50V
 C14 1-162-966-11 s CERAMIC, CHIP 0.0022uF 10% 50V
 C15 1-162-919-11 s CERAMIC, CHIP 22PF 5% 50V
 C16 1-162-919-11 s CERAMIC, CHIP 22PF 5% 50V
 CN1 1-566-531-11 s CONNECTOR, FPC (ZIF) 15P
 CN2 1-566-531-11 s CONNECTOR, FPC (ZIF) 15P
 D1 8-719-510-30 s DIODE D2FL20
 F1 ▲ 1-576-212-21 s FUSE, CHIP
 IC1 8-759-300-71 s IC HD14053BFP
 L1 1-410-997-31 s INDUCTOR CHIP 2.2uH
 L2 1-410-997-31 s INDUCTOR CHIP 2.2uH
 L3 1-410-997-31 s INDUCTOR CHIP 2.2uH
 L4 1-410-997-31 s INDUCTOR CHIP 2.2uH
 L12 1-408-781-00 s INDUCTOR CHIP 22uH
 Q1 8-729-427-83 s TRANSISTOR XP6501
 Q2 8-729-117-16 s TRANSISTOR 2SA1611-M6
 Q3 8-729-427-74 s TRANSISTOR XP4601
 Q4 8-729-117-32 s TRANSISTOR 2SC4177
 Q5 8-729-117-16 s TRANSISTOR 2SA1611-M6
 Q6 8-729-427-83 s TRANSISTOR XP6501
 Q7 8-729-117-16 s TRANSISTOR 2SA1611-M6
 Q8 8-729-427-74 s TRANSISTOR XP4601
 Q9 8-729-117-32 s TRANSISTOR 2SC4177
 Q10 8-729-117-16 s TRANSISTOR 2SA1611-M6
 R2 1-216-837-11 s METAL, CHIP 22K 5% 1/16W
 R3 1-216-837-11 s METAL, CHIP 22K 5% 1/16W
 R4 1-218-285-11 s METAL, CHIP 75 5% 1/16W
 R10 1-218-285-11 s METAL, CHIP 75 5% 1/16W
 R11 1-218-285-11 s METAL, CHIP 75 5% 1/16W
 R12 1-218-285-11 s METAL, CHIP 75 5% 1/16W
 R13 1-218-285-11 s METAL, CHIP 75 5% 1/16W
 R14 1-218-285-11 s METAL, CHIP 75 5% 1/16W
 R15 1-218-285-11 s METAL, CHIP 75 5% 1/16W
 R16 1-218-285-11 s METAL, CHIP 75 5% 1/16W
 R17 1-218-285-11 s METAL, CHIP 75 5% 1/16W
 R19 1-218-883-11 s METAL, CHIP 33K 0.50% 1/16W
 R20 1-218-723-11 s METAL 20K 0.50% 1/16W
 R21 1-218-701-11 s METAL 2.4K 0.50% 1/16W
 R22 1-218-698-11 s METAL 1.8K 0.50% 1/16W
 R23 1-216-823-11 s METAL, CHIP 1.5K 5% 1/16W
 R24 1-216-821-11 s METAL, CHIP 1K 5% 1/16W
 R25 1-218-716-11 s METAL 10K 0.50% 1/16W
 R26 1-218-700-11 s METAL 2.2K 0.50% 1/16W

(CN-580 BOARD)

Ref. No.
or Q'ty Part No. SP Description

R27	1-218-700-11	s METAL 2.2K 0.50% 1/16W
R28	1-218-700-11	s METAL 2.2K 0.50% 1/16W
R29	1-216-821-11	s METAL, CHIP 1K 5% 1/16W
R30	1-216-829-11	s METAL, CHIP 4.7K 5% 1/16W
R31	1-218-286-11	s METAL, CHIP 91 0.50% 1/16W
R32	1-218-271-11	s METAL 2K 0.50% 1/16W
R33	1-216-827-11	s METAL, CHIP 3.3K 5% 1/16W
R34	1-216-797-11	s METAL, CHIP 10 5% 1/16W
R35	1-216-797-11	s METAL, CHIP 10 5% 1/16W
R36	1-216-797-11	s METAL, CHIP 10 5% 1/16W
R37	1-216-797-11	s METAL, CHIP 10 5% 1/16W
R38	1-218-700-11	s METAL 2.2K 0.50% 1/16W
R39	1-218-700-11	s METAL 2.2K 0.50% 1/16W
R40	1-218-700-11	s METAL 2.2K 0.50% 1/16W
R41	1-216-821-11	s METAL, CHIP 1K 5% 1/16W
R42	1-216-829-11	s METAL, CHIP 4.7K 5% 1/16W
R43	1-216-864-11	s METAL, CHIP 0-OHM
R44	1-218-700-11	s METAL 2.2K 0.50% 1/16W
R45	1-216-827-11	s METAL, CHIP 3.3K 5% 1/16W
R46	1-216-797-11	s METAL, CHIP 10 5% 1/16W
R47	1-216-797-11	s METAL, CHIP 10 5% 1/16W
R48	1-216-797-11	s METAL, CHIP 10 5% 1/16W
R49	1-216-797-11	s METAL, CHIP 10 5% 1/16W
S1	1-571-787-11	s SWITCH, TACTILE
S2	1-571-787-11	s SWITCH, TACTILE
S3	1-571-787-11	s SWITCH, TACTILE
S4	1-571-787-11	s SWITCH, TACTILE
S5	1-571-787-11	s SWITCH, TACTILE
S6	1-571-787-11	s SWITCH, TACTILE
S7	1-571-120-11	s SWITCH, SLIDE

IF-354 BOARD

Ref. No.
or Q'ty Part No. SP Description

1pc	A-8271-143-A	o MOUNTED CIRCUIT BOARD, IF-354 (DXC-930/960MD,XC-009)
C1	1-162-964-11	s CERAMIC 0.001uF 10% 50V
C2	1-164-156-11	s CERAMIC 0.1uF 25V
C3	1-135-076-21	s TANTALUM, CHIP 1uF 10% 35V
C4	1-135-162-21	s TANTALUM, CHIP 33uF 10% 6.3V
C5	1-164-156-11	s CERAMIC 0.1uF 25V
C6	1-162-905-11	s CERAMIC 1PF 0.25PF 50V
C7	1-162-928-11	s CERAMIC 120PF 5% 50V
C8	1-162-928-11	s CERAMIC 120PF 5% 50V
C9	1-126-392-11	s ELECT, CHIP 100uF 20% 6.3V
C10	1-126-396-11	s ELECT, CHIP 47uF 20% 16V
C11	1-162-908-11	s CERAMIC 3PF 0.25PF 50V
C12	1-162-921-11	s CERAMIC, CHIP 33PF 5% 50V
C13	1-135-159-21	s TANTALUM, CHIP 10uF 10% 20V
C15	1-135-161-21	s TANTALUM, CHIP 22uF 10% 10V
C16	1-164-156-11	s CERAMIC 0.1uF 25V
C17	1-135-159-21	s TANTALUM, CHIP 10uF 10% 20V
C18	1-162-974-11	s CERAMIC 0.01uF 50V
C19	1-162-974-11	s CERAMIC 0.01uF 50V
C20	1-135-159-21	s TANTALUM, CHIP 10uF 10% 20V
C21	1-126-391-11	s ELECT, CHIP 47uF 20% 6.3V
C22	1-126-396-11	s ELECT, CHIP 47uF 20% 16V
C23	1-162-919-11	s CERAMIC, CHIP 22PF 5% 50V
C24	1-162-907-11	s CERAMIC, CHIP 2PF 50V
C25	1-162-917-11	s CERAMIC, CHIP 15PF 5% 50V
C26	1-135-216-11	s TANTALUM 10uF 20% 10V
C27	1-162-908-11	s CERAMIC 3PF 0.25PF 50V
C28	1-162-911-11	s CERAMIC, CHIP 6PF 50V
C29	1-162-911-11	s CERAMIC, CHIP 6PF 50V
C30	1-135-162-21	s TANTALUM, CHIP 33uF 10% 6.3V
C31	1-162-915-11	s CERAMIC, CHIP 10PF 5PF 50V
C32	1-162-915-11	s CERAMIC, CHIP 10PF 5PF 50V
C33	1-162-915-11	s CERAMIC, CHIP 10PF 5PF 50V
C34	1-162-915-11	s CERAMIC, CHIP 10PF 5PF 50V
C35	1-135-211-11	s TANTALUM 6.8uF 20% 6.3
C36	1-135-211-11	s TANTALUM 6.8uF 20% 6.3
C37	1-135-211-11	s TANTALUM 6.8uF 20% 6.3
C38	1-135-162-21	s TANTALUM, CHIP 33uF 10% 6.3V
C39	1-135-162-21	s TANTALUM, CHIP 33uF 10% 6.3V
C40	1-135-162-21	s TANTALUM, CHIP 33uF 10% 6.3V
C41	1-162-915-11	s CERAMIC, CHIP 10PF 5PF 50V
C42	1-162-915-11	s CERAMIC, CHIP 10PF 5PF 50V
C43	1-135-162-21	s TANTALUM, CHIP 33uF 10% 6.3V
C44	1-135-181-21	s TANTALUM, CHIP 4.7uF 10% 6.3V
C45	1-162-911-11	s CERAMIC, CHIP 6PF 50V
C46	1-162-913-11	s CERAMIC 8PF 0.5PF 50V
C47	1-162-909-11	s CERAMIC 4PF 0.25PF 50V
C48	1-135-162-21	s TANTALUM, CHIP 33uF 10% 6.3V
C49	1-162-915-11	s CERAMIC, CHIP 10PF 5PF 50V
C50	1-135-162-21	s TANTALUM, CHIP 33uF 10% 6.3V
C51	1-162-911-11	s CERAMIC, CHIP 6PF 50V
C52	1-162-918-11	s CERAMIC, CHIP 18PF 5% 50V
C53	1-135-217-21	s TANTALUM 15uF 20% 6.3
C54	1-162-927-11	s CERAMIC, CHIP 100PF 5% 50V
C55	1-135-162-21	s TANTALUM, CHIP 33uF 10% 6.3V
C56	1-162-916-11	s CERAMIC, CHIP 12PF 5% 50V
C57	1-135-162-21	s TANTALUM, CHIP 33uF 10% 6.3V

DXC-810V930P
DXC-810V930D
XC-00V000P

(IF-354 BOARD)

Ref. No. or Q'ty	Part No.	SP Description
C58	1-135-157-21	s TANTALUM, CHIP 10uF 10% 6.3V
C59	1-135-162-21	s TANTALUM, CHIP 33uF 10% 6.3V
C60	1-162-910-11	s CERAMIC 5PF 0.25PF 50V
C61	1-162-916-11	s CERAMIC, CHIP 12PF 5% 50V
C62	1-135-210-11	s TANTALUM 4.7uF 20% 10V
C63	1-135-210-11	s TANTALUM 4.7uF 20% 10V
C64	1-162-911-11	s CERAMIC, CHIP 6PF 50V
CN1	1-569-607-11	s CONNECTOR, BOARD TO BOARD 24P
CN2	1-569-607-11	s CONNECTOR, BOARD TO BOARD 24P
IC1	8-752-332-69	s IC CXL5504M
IC2	8-759-242-64	s IC TC4W53F
IC3	8-759-209-97	s IC TC4S81F
IC4	8-759-209-57	s IC TC4S69F
L1	1-408-781-00	s INDUCTOR CHIP 22uH
L2	1-408-781-00	s INDUCTOR CHIP 22uH
L3	1-408-793-21	s INDUCTOR CHIP 220uH
L4	1-410-719-31	s INDUCTOR CHIP 150uH
L5	1-408-781-00	s INDUCTOR CHIP 22uH
L6	1-408-797-11	s INDUCTOR CHIP 470uH
L7	1-408-781-00	s INDUCTOR CHIP 22uH
L8	1-408-793-21	s INDUCTOR CHIP 220uH
L9	1-408-781-00	s INDUCTOR CHIP 22uH
L10	1-408-781-00	s INDUCTOR CHIP 22uH
L11	1-408-781-00	s INDUCTOR CHIP 22uH
L12	1-408-781-00	s INDUCTOR CHIP 22uH
L13	1-408-781-00	s INDUCTOR CHIP 22uH
Q1	8-729-117-16	s TRANSISTOR 2SA1611-M6
Q2	8-729-117-16	s TRANSISTOR 2SA1611-M6
Q3	8-729-117-32	s TRANSISTOR 2SC4177
Q4	8-729-117-32	s TRANSISTOR 2SC4177
Q5	8-729-117-32	s TRANSISTOR 2SC4177
Q6	8-729-117-16	s TRANSISTOR 2SA1611-M6
Q7	8-729-117-16	s TRANSISTOR 2SA1611-M6
Q8	8-729-117-16	s TRANSISTOR 2SA1611-M6
Q9	8-729-117-32	s TRANSISTOR 2SC4177
Q10	8-729-117-32	s TRANSISTOR 2SC4177
Q11	8-729-926-19	s TRANSISTOR 2SC4103-Q
Q12	8-729-117-32	s TRANSISTOR 2SC4177
Q13	8-729-926-19	s TRANSISTOR 2SC4103-Q
Q14	8-729-926-19	s TRANSISTOR 2SC4103-Q
Q15	8-729-117-16	s TRANSISTOR 2SA1611-M6
Q16	8-729-926-19	s TRANSISTOR 2SC4103-Q
Q17	8-729-117-32	s TRANSISTOR 2SC4177
Q18	8-729-117-16	s TRANSISTOR 2SA1611-M6
Q19	8-729-117-16	s TRANSISTOR 2SA1611-M6
Q20	8-729-117-16	s TRANSISTOR 2SA1611-M6
Q21	8-729-926-19	s TRANSISTOR 2SC4103-Q
Q22	8-729-117-16	s TRANSISTOR 2SA1611-M6
Q23	8-729-117-16	s TRANSISTOR 2SA1611-M6
Q24	8-729-117-16	s TRANSISTOR 2SA1611-M6
Q25	8-729-117-32	s TRANSISTOR 2SC4177
Q26	8-729-117-32	s TRANSISTOR 2SC4177
Q27	8-729-117-32	s TRANSISTOR 2SC4177
Q28	8-729-427-74	s TRANSISTOR XP4601
Q29	8-729-427-74	s TRANSISTOR XP4601
Q30	8-729-427-74	s TRANSISTOR XP4601
Q31	8-729-427-83	s TRANSISTOR XP6501

(IF-354 BOARD)

Ref. No. or Q'ty	Part No.	SP Description
Q32	8-729-427-83	s TRANSISTOR XP6501
Q33	8-729-427-74	s TRANSISTOR XP4601
Q34	8-729-926-19	s TRANSISTOR 2SC4103-Q
Q35	8-729-427-74	s TRANSISTOR XP4601
Q36	8-729-926-19	s TRANSISTOR 2SC4103-Q
Q37	8-729-427-74	s TRANSISTOR XP4601
Q38	8-729-926-19	s TRANSISTOR 2SC4103-Q
Q39	8-729-427-83	s TRANSISTOR XP6501
Q40	8-729-117-16	s TRANSISTOR 2SA1611-M6
Q41	8-729-117-16	s TRANSISTOR 2SA1611-M6
Q42	8-729-117-16	s TRANSISTOR 2SA1611-M6
Q43	8-729-117-16	s TRANSISTOR 2SA1611-M6
Q44	8-729-117-32	s TRANSISTOR 2SC4177
Q45	8-729-117-32	s TRANSISTOR 2SC4177
Q46	8-729-117-16	s TRANSISTOR 2SA1611-M6
Q47	8-729-117-16	s TRANSISTOR 2SA1611-M6
Q48	8-729-427-83	s TRANSISTOR XP6501
Q49	8-729-427-74	s TRANSISTOR XP4601
Q50	8-729-117-32	s TRANSISTOR 2SC4177
Q51	8-729-117-32	s TRANSISTOR 2SC4177
Q52	8-729-427-83	s TRANSISTOR XP6501
Q53	8-729-427-74	s TRANSISTOR XP4601
Q54	8-729-427-83	s TRANSISTOR XP6501
Q55	8-729-427-74	s TRANSISTOR XP4601
Q56	8-729-117-32	s TRANSISTOR 2SC4177
Q57	8-729-427-74	s TRANSISTOR XP4601
Q58	8-729-117-32	s TRANSISTOR 2SC4177
Q59	8-729-117-16	s TRANSISTOR 2SA1611-M6
Q60	8-729-117-16	s TRANSISTOR 2SA1611-M6
Q61	8-729-117-16	s TRANSISTOR 2SA1611-M6
Q62	8-729-117-16	s TRANSISTOR 2SA1611-M6
Q63	8-729-117-16	s TRANSISTOR 2SA1611-M6
Q64	8-729-427-83	s TRANSISTOR XP6501
R1	1-216-833-11	s METAL, CHIP 10K 5% 1/16W
R2	1-216-828-11	s METAL, CHIP 3.9K 5% 1/16W
R3	1-216-829-11	s METAL, CHIP 4.7K 5% 1/16W
R4	1-216-823-11	s METAL, CHIP 1.5K 5% 1/16W
R5	1-216-836-11	s METAL, CHIP 18K 5% 1/16W
R6	1-216-821-11	s METAL, CHIP 1K 5% 1/16W
R7	1-216-828-11	s METAL, CHIP 3.9K 5% 1/16W
R8	1-216-821-11	s METAL, CHIP 1K 5% 1/16W
R9	1-216-829-11	s METAL, CHIP 4.7K 5% 1/16W
R10	1-216-829-11	s METAL, CHIP 4.7K 5% 1/16W
R11	1-216-834-11	s METAL, CHIP 12K 5% 1/16W
R12	1-216-829-11	s METAL, CHIP 4.7K 5% 1/16W
R13	1-216-829-11	s METAL, CHIP 4.7K 5% 1/16W
R14	1-216-829-11	s METAL, CHIP 4.7K 5% 1/16W
R15	1-216-839-11	s METAL, CHIP 33K 5% 1/16W
R16	1-216-826-11	s METAL, CHIP 2.7K 5% 1/16W
R17	1-216-857-11	s METAL, CHIP 1M 5% 1/16W
R18	1-216-828-11	s METAL, CHIP 3.9K 5% 1/16W
R19	1-216-825-11	s METAL, CHIP 2.2K 5% 1/16W
R20	1-216-809-11	s METAL, CHIP 100 5% 1/16W
R21	1-216-829-11	s METAL, CHIP 4.7K 5% 1/16W
R22	1-216-829-11	s METAL, CHIP 4.7K 5% 1/16W
R23	1-216-833-11	s METAL, CHIP 10K 5% 1/16W
R24	1-216-829-11	s METAL, CHIP 4.7K 5% 1/16W
R25	1-216-818-11	s METAL, CHIP 560 5% 1/16W

(IF-354 BOARD)

Ref. No.
or Q'ty Part No. SP Description

R26 1-216-830-11 s METAL, CHIP 5.6K 5% 1/16W
 R27 1-216-809-11 s METAL, CHIP 100 5% 1/16W
 R28 1-216-825-11 s METAL, CHIP 2.2K 5% 1/16W
 R29 1-216-809-11 s METAL, CHIP 100 5% 1/16W
 R30 1-216-827-11 s METAL, CHIP 3.3K 5% 1/16W

R31 1-216-827-11 s METAL, CHIP 3.3K 5% 1/16W
 R32 1-216-829-11 s METAL, CHIP 4.7K 5% 1/16W
 R33 1-216-829-11 s METAL, CHIP 4.7K 5% 1/16W
 R34 1-216-829-11 s METAL, CHIP 4.7K 5% 1/16W
 R35 1-216-835-11 s METAL, CHIP 15K 5% 1/16W

R36 1-216-825-11 s METAL, CHIP 2.2K 5% 1/16W
 R37 1-216-822-11 s METAL, CHIP 1.2K 5% 1/16W
 R38 1-216-831-11 s METAL, CHIP 6.8K 5% 1/16W
 R39 1-216-821-11 s METAL, CHIP 1K 5% 1/16W
 R40 1-216-821-11 s METAL, CHIP 1K 5% 1/16W

R41 1-216-821-11 s METAL, CHIP 1K 5% 1/16W
 R42 1-216-825-11 s METAL, CHIP 2.2K 5% 1/16W
 R43 1-216-841-11 s METAL, CHIP 47K 5% 1/16W
 R44 1-216-825-11 s METAL, CHIP 2.2K 5% 1/16W
 R45 1-216-841-11 s METAL, CHIP 47K 5% 1/16W

R46 1-216-829-11 s METAL, CHIP 4.7K 5% 1/16W
 R47 1-216-829-11 s METAL, CHIP 4.7K 5% 1/16W
 R48 1-216-825-11 s METAL, CHIP 2.2K 5% 1/16W
 R49 1-216-841-11 s METAL, CHIP 47K 5% 1/16W
 R50 1-216-829-11 s METAL, CHIP 4.7K 5% 1/16W

R51 1-216-825-11 s METAL, CHIP 2.2K 5% 1/16W
 R52 1-216-825-11 s METAL, CHIP 2.2K 5% 1/16W
 R53 1-216-825-11 s METAL, CHIP 2.2K 5% 1/16W
 R54 1-216-797-11 s METAL, CHIP 10 5% 1/16W
 R55 1-216-797-11 s METAL, CHIP 10 5% 1/16W

R56 1-216-797-11 s METAL, CHIP 10 5% 1/16W
 R57 1-216-797-11 s METAL, CHIP 10 5% 1/16W
 R58 1-216-797-11 s METAL, CHIP 10 5% 1/16W
 R59 1-216-797-11 s METAL, CHIP 10 5% 1/16W
 R60 1-216-821-11 s METAL, CHIP 1K 5% 1/16W

R61 1-216-821-11 s METAL, CHIP 1K 5% 1/16W
 R62 1-216-821-11 s METAL, CHIP 1K 5% 1/16W
 R63 1-216-821-11 s METAL, CHIP 1K 5% 1/16W
 R64 1-216-835-11 s METAL, CHIP 15K 5% 1/16W
 R65 1-216-821-11 s METAL, CHIP 1K 5% 1/16W

R66 1-216-821-11 s METAL, CHIP 1K 5% 1/16W
 R67 1-216-835-11 s METAL, CHIP 15K 5% 1/16W
 R68 1-216-704-11 s METAL 3.3K 0.50% 1/16W
 R69 1-216-835-11 s METAL, CHIP 15K 5% 1/16W
 R70 1-216-826-11 s METAL, CHIP 2.7K 5% 1/16W

R71 1-216-704-11 s METAL 3.3K 0.50% 1/16W
 R72 1-216-826-11 s METAL, CHIP 2.7K 5% 1/16W
 R73 1-216-835-11 s METAL, CHIP 15K 5% 1/16W
 R74 1-216-835-11 s METAL, CHIP 15K 5% 1/16W
 R75 1-216-835-11 s METAL, CHIP 15K 5% 1/16W

R76 1-216-797-11 s METAL, CHIP 10 5% 1/16W
 R77 1-216-797-11 s METAL, CHIP 10 5% 1/16W
 R78 1-216-797-11 s METAL, CHIP 10 5% 1/16W
 R79 1-216-797-11 s METAL, CHIP 10 5% 1/16W
 R80 1-216-797-11 s METAL, CHIP 10 5% 1/16W

R81 1-216-797-11 s METAL, CHIP 10 5% 1/16W
 R82 1-216-821-11 s METAL, CHIP 1K 5% 1/16W
 R83 1-216-809-11 s METAL, CHIP 100 5% 1/16W
 R84 1-216-829-11 s METAL, CHIP 4.7K 5% 1/16W

(IF-354 BOARD)

Ref. No.
or Q'ty Part No. SP Description

R85 1-216-700-11 s METAL 2.2K 0.50% 1/16W
 R86 1-216-827-11 s METAL, CHIP 3.3K 5% 1/16W
 R87 1-216-821-11 s METAL, CHIP 1K 5% 1/16W
 R88 1-216-809-11 s METAL, CHIP 100 5% 1/16W
 R89 1-216-700-11 s METAL 2.2K 0.50% 1/16W

R90 1-216-809-11 s METAL, CHIP 100 5% 1/16W
 R91 1-216-700-11 s METAL 2.2K 0.50% 1/16W
 R92 1-216-829-11 s METAL, CHIP 4.7K 5% 1/16W
 R93 1-216-821-11 s METAL, CHIP 1K 5% 1/16W
 R94 1-216-829-11 s METAL, CHIP 4.7K 5% 1/16W

R95 1-216-829-11 s METAL, CHIP 4.7K 5% 1/16W
 R96 1-216-829-11 s METAL, CHIP 4.7K 5% 1/16W
 R97 1-216-829-11 s METAL, CHIP 4.7K 5% 1/16W
 R98 1-216-827-11 s METAL, CHIP 3.3K 5% 1/16W
 R99 1-216-823-11 s METAL, CHIP 1.5K 5% 1/16W

R100 1-216-821-11 s METAL, CHIP 1K 5% 1/16W
 R101 1-216-825-11 s METAL, CHIP 2.2K 5% 1/16W
 R102 1-216-825-11 s METAL, CHIP 2.2K 5% 1/16W
 R103 1-216-841-11 s METAL, CHIP 47K 5% 1/16W
 R104 1-216-821-11 s METAL, CHIP 1K 5% 1/16W

R105 1-216-821-11 s METAL, CHIP 1K 5% 1/16W
 R106 1-216-829-11 s METAL, CHIP 4.7K 5% 1/16W
 R107 1-216-700-11 s METAL 2.2K 0.50% 1/16W
 R108 1-216-700-11 s METAL 2.2K 0.50% 1/16W
 R109 1-216-700-11 s METAL 2.2K 0.50% 1/16W

R110 1-216-789-11 s METAL 2.2 5% 1/16W
 R111 1-216-797-11 s METAL, CHIP 10 5% 1/16W
 R112 1-216-797-11 s METAL, CHIP 10 5% 1/16W
 R113 1-216-837-11 s METAL, CHIP 22K 5% 1/16W
 R114 1-216-821-11 s METAL, CHIP 1K 5% 1/16W

R115 1-216-688-11 s METAL 680 0.50% 1/16W
 R116 1-216-789-11 s METAL 2.2 5% 1/16W
 R117 1-216-864-11 s METAL, CHIP 0-OHM
 R118 1-216-797-11 s METAL, CHIP 10 5% 1/16W
 R119 1-216-797-11 s METAL, CHIP 10 5% 1/16W

R120 1-216-797-11 s METAL, CHIP 10 5% 1/16W
 R121 1-216-797-11 s METAL, CHIP 10 5% 1/16W
 R122 1-216-700-11 s METAL 2.2K 0.50% 1/16W
 R123 1-216-797-11 s METAL, CHIP 10 5% 1/16W
 R124 1-216-797-11 s METAL, CHIP 10 5% 1/16W

R125 1-216-823-11 s METAL, CHIP 1.5K 5% 1/16W
 R126 1-216-700-11 s METAL 2.2K 0.50% 1/16W
 R127 1-216-700-11 s METAL 2.2K 0.50% 1/16W
 R128 1-216-835-11 s METAL, CHIP 15K 5% 1/16W
 R129 1-216-834-11 s METAL, CHIP 12K 5% 1/16W

R130 1-216-797-11 s METAL, CHIP 10 5% 1/16W
 R131 1-216-797-11 s METAL, CHIP 10 5% 1/16W
 R132 1-216-797-11 s METAL, CHIP 10 5% 1/16W
 R133 1-216-797-11 s METAL, CHIP 10 5% 1/16W
 R134 1-216-829-11 s METAL, CHIP 4.7K 5% 1/16W

R135 1-216-839-11 s METAL, CHIP 33K 5% 1/16W
 R136 1-216-864-11 s METAL, CHIP 0-OHM
 R137 1-216-864-11 s METAL, CHIP 0-OHM
 R138 1-216-841-11 s METAL, CHIP 47K 5% 1/16W
 R139 1-216-829-11 s METAL, CHIP 4.7K 5% 1/16W

R140 1-216-827-11 s METAL, CHIP 3.3K 5% 1/16W
 R141 1-216-825-11 s METAL, CHIP 2.2K 5% 1/16W
 R142 1-216-864-11 s METAL, CHIP 0-OHM
 R143 1-216-809-11 s METAL, CHIP 100 5% 1/16W

(IF-354 BOARD)

Ref. No. or Q'ty	Part No.	SP Description
R144	1-216-826-11	s METAL, CHIP 2.7K 5% 1/16W
R145	1-216-829-11	s METAL, CHIP 4.7K 5% 1/16W
R146	1-216-825-11	s METAL, CHIP 2.2K 5% 1/16W
R147	1-218-708-11	s METAL 4.7K 0.50% 1/16W
R148	1-216-829-11	s METAL, CHIP 4.7K 5% 1/16W
R149	1-218-700-11	s METAL 2.2K 0.50% 1/16W
R150	1-216-827-11	s METAL, CHIP 3.3K 5% 1/16W
R151	1-216-864-11	s METAL, CHIP 0-OHM
R152	1-216-826-11	s METAL, CHIP 2.7K 5% 1/16W
R153	1-216-826-11	s METAL, CHIP 2.7K 5% 1/16W
R154	1-216-829-11	s METAL, CHIP 4.7K 5% 1/16W
R155	1-216-821-11	s METAL, CHIP 1K 5% 1/16W
R156	1-216-833-11	s METAL, CHIP 10K 5% 1/16W
R157	1-216-827-11	s METAL, CHIP 3.3K 5% 1/16W
R158	1-218-739-11	s METAL, CHIP 91K 0.50% 1/16W
R159	1-218-700-11	s METAL 2.2K 0.50% 1/16W
RV1	1-238-089-11	s RES, ADJ CERMET 4.7K
RV2	1-238-088-11	s RES, ADJ, CERMET 2.2K
RV3	1-238-088-11	s RES, ADJ, CERMET 2.2K
RV4	1-238-088-11	s RES, ADJ, CERMET 2.2K
RV5	1-238-088-11	s RES, ADJ, CERMET 2.2K
RV6	1-238-088-11	s RES, ADJ, CERMET 2.2K
RV7	1-238-090-11	s RES, ADJ CERMET 10K

IF-354P BOARD

Ref. No. or Q'ty	Part No.	SP Description
1pc	A-8271-144-A o	OUNTED CIRCUIT BOARD, IF-354P (DXC-930P,XC-009P)
C1	1-162-964-11	s CERAMIC 0.001uF 10% 50V
C2	1-164-156-11	s CERAMIC 0.1uF 25V
C3	1-135-076-21	s TANTALUM, CHIP 1uF 10% 35V
C4	1-135-162-21	s TANTALUM, CHIP 33uF 10% 6.3V
C5	1-164-156-11	s CERAMIC 0.1uF 25V
C6	1-162-905-11	s CERAMIC 1PF 0.25PF 50V
C7	1-162-924-11	s CERAMIC 56PF 5% 50V
C8	1-162-924-11	s CERAMIC 56PF 5% 50V
C9	1-126-392-11	s ELECT, CHIP 100uF 20% 6.3V
C10	1-126-396-11	s ELECT, CHIP 47uF 20% 16V
C11	1-162-909-11	s CERAMIC 4PF 0.25PF 50V
C12	1-162-922-11	s CERAMIC, CHIP 39PF 5% 50V
C13	1-135-159-21	s TANTALUM, CHIP 10uF 10% 20V
C15	1-135-161-21	s TANTALUM, CHIP 22uF 10% 10V
C16	1-164-156-11	s CERAMIC 0.1uF 25V
C17	1-135-159-21	s TANTALUM, CHIP 10uF 10% 20V
C18	1-162-974-11	s CERAMIC 0.01uF 50V
C19	1-162-974-11	s CERAMIC 0.01uF 50V
C20	1-135-159-21	s TANTALUM, CHIP 10uF 10% 20V
C21	1-126-391-11	s ELECT, CHIP 47uF 20% 6.3V
C22	1-126-396-11	s ELECT, CHIP 47uF 20% 16V
C23	1-162-919-11	s CERAMIC, CHIP 22PF 5% 50V
C24	1-162-907-11	s CERAMIC, CHIP 2PF 50V
C25	1-162-917-11	s CERAMIC, CHIP 15PF 5% 50V
C26	1-135-216-11	s TANTALUM 10uF 20% 10V
C27	1-162-908-11	s CERAMIC 3PF 0.25PF 50V
C28	1-162-911-11	s CERAMIC, CHIP 6PF 50V
C29	1-162-911-11	s CERAMIC, CHIP 6PF 50V
C30	1-135-162-21	s TANTALUM, CHIP 33uF 10% 6.3V
C31	1-162-915-11	s CERAMIC, CHIP 10PF 5PF 50V
C32	1-162-915-11	s CERAMIC, CHIP 10PF 5PF 50V
C33	1-162-915-11	s CERAMIC, CHIP 10PF 5PF 50V
C34	1-162-915-11	s CERAMIC, CHIP 10PF 5PF 50V
C35	1-135-211-11	s TANTALUM 6.8uF 20% 6.3
C36	1-135-211-11	s TANTALUM 6.8uF 20% 6.3
C37	1-135-211-11	s TANTALUM 6.8uF 20% 6.3
C38	1-135-162-21	s TANTALUM, CHIP 33uF 10% 6.3V
C39	1-135-162-21	s TANTALUM, CHIP 33uF 10% 6.3V
C40	1-135-162-21	s TANTALUM, CHIP 33uF 10% 6.3V
C41	1-162-915-11	s CERAMIC, CHIP 10PF 5PF 50V
C42	1-162-915-11	s CERAMIC, CHIP 10PF 5PF 50V
C43	1-135-162-21	s TANTALUM, CHIP 33uF 10% 6.3V
C44	1-135-181-21	s TANTALUM, CHIP 4.7uF 10% 6.3V
C45	1-162-911-11	s CERAMIC, CHIP 6PF 50V
C46	1-162-913-11	s CERAMIC 8PF 0.5PF 50V
C47	1-162-909-11	s CERAMIC 4PF 0.25PF 50V
C48	1-135-162-21	s TANTALUM, CHIP 33uF 10% 6.3V
C49	1-162-915-11	s CERAMIC, CHIP 10PF 5PF 50V
C50	1-135-162-21	s TANTALUM, CHIP 33uF 10% 6.3V
C51	1-162-911-11	s CERAMIC, CHIP 6PF 50V
C52	1-162-918-11	s CERAMIC, CHIP 18PF 5% 50V
C53	1-135-217-21	s TANTALUM 15uF 20% 6.3
C54	1-162-927-11	s CERAMIC, CHIP 100PF 5% 50V
C55	1-135-162-21	s TANTALUM, CHIP 33uF 10% 6.3V
C56	1-162-916-11	s CERAMIC, CHIP 12PF 5% 50V
C57	1-135-162-21	s TANTALUM, CHIP 33uF 10% 6.3V

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Ref. No. or Q'ty	Part No.	SP Description
C58	1-135-157-21	s TANTALUM, CHIP 10uF 10% 6.3V
C59	1-135-162-21	s TANTALUM, CHIP 33uF 10% 6.3V
C60	1-162-910-11	s CERAMIC 5PF 0.25PF 50V
C61	1-162-916-11	s CERAMIC, CHIP 12PF 5% 50V
C62	1-135-210-11	s TANTALUM 4.7uF 20% 10V
C63	1-135-210-11	s TANTALUM 4.7uF 20% 10V
C64	1-162-911-11	s CERAMIC, CHIP 6PF 50V
CN1	1-569-607-11	s CONNECTOR, BOARD TO BOARD 24P
CN2	1-569-607-11	s CONNECTOR, BOARD TO BOARD 24P
IC1	8-752-332-69	s IC CXL5504M
IC2	8-759-242-64	s IC TC4W53F
IC3	8-759-209-97	s IC TC4S81F
IC4	8-759-209-57	s IC TC4S69F
L1	1-408-781-00	s INDUCTOR CHIP 22uH
L2	1-408-781-00	s INDUCTOR CHIP 22uH
L3	1-410-717-31	s INDUCTOR, CHIP 100uH
L4	1-408-790-00	s INDUCTOR CHIP 120uH
L5	1-408-781-00	s INDUCTOR CHIP 22uH
L6	1-408-797-11	s INDUCTOR CHIP 470uH
L7	1-408-781-00	s INDUCTOR CHIP 22uH
L8	1-408-793-21	s INDUCTOR CHIP 220uH
L9	1-408-781-00	s INDUCTOR CHIP 22uH
L10	1-408-781-00	s INDUCTOR CHIP 22uH
L11	1-408-781-00	s INDUCTOR CHIP 22uH
L12	1-408-781-00	s INDUCTOR CHIP 22uH
L13	1-408-781-00	s INDUCTOR CHIP 22uH
Q1	8-729-117-16	s TRANSISTOR 2SA1611-M6
Q2	8-729-117-16	s TRANSISTOR 2SA1611-M6
Q3	8-729-117-32	s TRANSISTOR 2SC4177
Q4	8-729-117-32	s TRANSISTOR 2SC4177
Q5	8-729-117-32	s TRANSISTOR 2SC4177
Q6	8-729-117-16	s TRANSISTOR 2SA1611-M6
Q7	8-729-117-16	s TRANSISTOR 2SA1611-M6
Q8	8-729-117-16	s TRANSISTOR 2SA1611-M6
Q9	8-729-117-32	s TRANSISTOR 2SC4177
Q10	8-729-117-32	s TRANSISTOR 2SC4177
Q11	8-729-926-19	s TRANSISTOR 2SC4103-Q
Q12	8-729-117-32	s TRANSISTOR 2SC4177
Q13	8-729-926-19	s TRANSISTOR 2SC4103-Q
Q14	8-729-926-19	s TRANSISTOR 2SC4103-Q
Q15	8-729-117-16	s TRANSISTOR 2SA1611-M6
Q16	8-729-926-19	s TRANSISTOR 2SC4103-Q
Q17	8-729-117-32	s TRANSISTOR 2SC4177
Q18	8-729-117-16	s TRANSISTOR 2SA1611-M6
Q19	8-729-117-16	s TRANSISTOR 2SA1611-M6
Q20	8-729-117-16	s TRANSISTOR 2SA1611-M6
Q21	8-729-926-19	s TRANSISTOR 2SC4103-Q
Q22	8-729-117-16	s TRANSISTOR 2SA1611-M6
Q23	8-729-117-16	s TRANSISTOR 2SA1611-M6
Q24	8-729-117-16	s TRANSISTOR 2SA1611-M6
Q25	8-729-117-32	s TRANSISTOR 2SC4177
Q26	8-729-117-32	s TRANSISTOR 2SC4177
Q27	8-729-117-32	s TRANSISTOR 2SC4177
Q28	8-729-427-74	s TRANSISTOR XP4601
Q29	8-729-427-74	s TRANSISTOR XP4601
Q30	8-729-427-74	s TRANSISTOR XP4601
Q31	8-729-427-83	s TRANSISTOR XP6501

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Ref. No. or Q'ty	Part No.	SP Description
Q32	8-729-427-83	s TRANSISTOR XP6501
Q33	8-729-427-74	s TRANSISTOR XP4601
Q34	8-729-926-19	s TRANSISTOR 2SC4103-Q
Q35	8-729-427-74	s TRANSISTOR XP4601
Q36	8-729-926-19	s TRANSISTOR 2SC4103-Q
Q37	8-729-427-74	s TRANSISTOR XP4601
Q38	8-729-926-19	s TRANSISTOR 2SC4103-Q
Q39	8-729-427-83	s TRANSISTOR XP6501
Q40	8-729-117-16	s TRANSISTOR 2SA1611-M6
Q41	8-729-117-16	s TRANSISTOR 2SA1611-M6
Q42	8-729-117-16	s TRANSISTOR 2SA1611-M6
Q43	8-729-117-16	s TRANSISTOR 2SA1611-M6
Q44	8-729-117-32	s TRANSISTOR 2SC4177
Q45	8-729-117-32	s TRANSISTOR 2SC4177
Q46	8-729-117-16	s TRANSISTOR 2SA1611-M6
Q47	8-729-117-16	s TRANSISTOR 2SA1611-M6
Q48	8-729-427-83	s TRANSISTOR XP6501
Q49	8-729-427-74	s TRANSISTOR XP4601
Q50	8-729-117-32	s TRANSISTOR 2SC4177
Q51	8-729-117-32	s TRANSISTOR 2SC4177
Q52	8-729-427-83	s TRANSISTOR XP6501
Q53	8-729-427-74	s TRANSISTOR XP4601
Q54	8-729-427-83	s TRANSISTOR XP6501
Q55	8-729-427-74	s TRANSISTOR XP4601
Q56	8-729-117-32	s TRANSISTOR 2SC4177
Q57	8-729-427-74	s TRANSISTOR XP4601
Q58	8-729-117-32	s TRANSISTOR 2SC4177
Q59	8-729-117-16	s TRANSISTOR 2SA1611-M6
Q60	8-729-117-16	s TRANSISTOR 2SA1611-M6
Q61	8-729-117-16	s TRANSISTOR 2SA1611-M6
Q62	8-729-117-16	s TRANSISTOR 2SA1611-M6
Q63	8-729-117-16	s TRANSISTOR 2SA1611-M6
Q64	8-729-427-83	s TRANSISTOR XP6501
R1	1-216-833-11	s METAL, CHIP 10K 5% 1/16W
R2	1-216-828-11	s METAL, CHIP 3.9K 5% 1/16W
R3	1-216-829-11	s METAL, CHIP 4.7K 5% 1/16W
R4	1-216-823-11	s METAL, CHIP 1.5K 5% 1/16W
R5	1-216-836-11	s METAL, CHIP 18K 5% 1/16W
R6	1-216-821-11	s METAL, CHIP 1K 5% 1/16W
R7	1-216-828-11	s METAL, CHIP 3.9K 5% 1/16W
R8	1-216-821-11	s METAL, CHIP 1K 5% 1/16W
R9	1-216-829-11	s METAL, CHIP 4.7K 5% 1/16W
R10	1-216-829-11	s METAL, CHIP 4.7K 5% 1/16W
R11	1-216-834-11	s METAL, CHIP 12K 5% 1/16W
R12	1-216-829-11	s METAL, CHIP 4.7K 5% 1/16W
R13	1-216-829-11	s METAL, CHIP 4.7K 5% 1/16W
R14	1-216-829-11	s METAL, CHIP 4.7K 5% 1/16W
R15	1-216-839-11	s METAL, CHIP 33K 5% 1/16W
R16	1-216-826-11	s METAL, CHIP 2.7K 5% 1/16W
R17	1-216-857-11	s METAL, CHIP 1M 5% 1/16W
R18	1-216-828-11	s METAL, CHIP 3.9K 5% 1/16W
R19	1-216-825-11	s METAL, CHIP 2.2K 5% 1/16W
R20	1-216-809-11	s METAL, CHIP 100 5% 1/16W
R21	1-216-829-11	s METAL, CHIP 4.7K 5% 1/16W
R22	1-216-829-11	s METAL, CHIP 4.7K 5% 1/16W
R23	1-216-833-11	s METAL, CHIP 10K 5% 1/16W
R24	1-216-829-11	s METAL, CHIP 4.7K 5% 1/16W
R25	1-216-818-11	s METAL, CHIP 560 5% 1/16W

(IF-354P BOARD)

Ref. No. or Q'ty	Part No.	SP Description
R26	1-216-830-11	s METAL, CHIP 5.6K 5% 1/16W
R27	1-216-809-11	s METAL, CHIP 100 5% 1/16W
R28	1-216-825-11	s METAL, CHIP 2.2K 5% 1/16W
R29	1-216-809-11	s METAL, CHIP 100 5% 1/16W
R30	1-216-827-11	s METAL, CHIP 3.3K 5% 1/16W
R31	1-216-827-11	s METAL, CHIP 3.3K 5% 1/16W
R32	1-216-829-11	s METAL, CHIP 4.7K 5% 1/16W
R33	1-216-829-11	s METAL, CHIP 4.7K 5% 1/16W
R34	1-216-829-11	s METAL, CHIP 4.7K 5% 1/16W
R35	1-216-835-11	s METAL, CHIP 15K 5% 1/16W
R36	1-216-825-11	s METAL, CHIP 2.2K 5% 1/16W
R37	1-216-822-11	s METAL, CHIP 1.2K 5% 1/16W
R38	1-216-831-11	s METAL, CHIP 6.8K 5% 1/16W
R39	1-216-821-11	s METAL, CHIP 1K 5% 1/16W
R40	1-216-821-11	s METAL, CHIP 1K 5% 1/16W
R41	1-216-821-11	s METAL, CHIP 1K 5% 1/16W
R42	1-216-825-11	s METAL, CHIP 2.2K 5% 1/16W
R43	1-216-841-11	s METAL, CHIP 47K 5% 1/16W
R44	1-216-825-11	s METAL, CHIP 2.2K 5% 1/16W
R45	1-216-841-11	s METAL, CHIP 47K 5% 1/16W
R46	1-216-829-11	s METAL, CHIP 4.7K 5% 1/16W
R47	1-216-829-11	s METAL, CHIP 4.7K 5% 1/16W
R48	1-216-825-11	s METAL, CHIP 2.2K 5% 1/16W
R49	1-216-841-11	s METAL, CHIP 47K 5% 1/16W
R50	1-216-829-11	s METAL, CHIP 4.7K 5% 1/16W
R51	1-216-825-11	s METAL, CHIP 2.2K 5% 1/16W
R52	1-216-825-11	s METAL, CHIP 2.2K 5% 1/16W
R53	1-216-825-11	s METAL, CHIP 2.2K 5% 1/16W
R54	1-216-797-11	s METAL, CHIP 10 5% 1/16W
R55	1-216-797-11	s METAL, CHIP 10 5% 1/16W
R56	1-216-797-11	s METAL, CHIP 10 5% 1/16W
R57	1-216-797-11	s METAL, CHIP 10 5% 1/16W
R58	1-216-797-11	s METAL, CHIP 10 5% 1/16W
R59	1-216-797-11	s METAL, CHIP 10 5% 1/16W
R60	1-216-821-11	s METAL, CHIP 1K 5% 1/16W
R61	1-216-821-11	s METAL, CHIP 1K 5% 1/16W
R62	1-216-821-11	s METAL, CHIP 1K 5% 1/16W
R63	1-216-821-11	s METAL, CHIP 1K 5% 1/16W
R64	1-216-835-11	s METAL, CHIP 15K 5% 1/16W
R65	1-216-821-11	s METAL, CHIP 1K 5% 1/16W
R66	1-216-821-11	s METAL, CHIP 1K 5% 1/16W
R67	1-216-835-11	s METAL, CHIP 15K 5% 1/16W
R68	1-216-704-11	s METAL 3.3K 0.50% 1/16W
R69	1-216-835-11	s METAL, CHIP 15K 5% 1/16W
R70	1-216-826-11	s METAL, CHIP 2.7K 5% 1/16W
R71	1-216-704-11	s METAL 3.3K 0.50% 1/16W
R72	1-216-826-11	s METAL, CHIP 2.7K 5% 1/16W
R73	1-216-835-11	s METAL, CHIP 15K 5% 1/16W
R74	1-216-835-11	s METAL, CHIP 15K 5% 1/16W
R75	1-216-835-11	s METAL, CHIP 15K 5% 1/16W
R76	1-216-797-11	s METAL, CHIP 10 5% 1/16W
R77	1-216-797-11	s METAL, CHIP 10 5% 1/16W
R78	1-216-797-11	s METAL, CHIP 10 5% 1/16W
R79	1-216-797-11	s METAL, CHIP 10 5% 1/16W
R80	1-216-797-11	s METAL, CHIP 10 5% 1/16W
R81	1-216-797-11	s METAL, CHIP 10 5% 1/16W
R82	1-216-821-11	s METAL, CHIP 1K 5% 1/16W
R83	1-216-809-11	s METAL, CHIP 100 5% 1/16W
R84	1-216-829-11	s METAL, CHIP 4.7K 5% 1/16W

(IF-354P BOARD)

Ref. No. or Q'ty	Part No.	SP Description
R85	1-216-700-11	s METAL 2.2K 0.50% 1/16W
R86	1-216-827-11	s METAL, CHIP 3.3K 5% 1/16W
R87	1-216-821-11	s METAL, CHIP 1K 5% 1/16W
R88	1-216-809-11	s METAL, CHIP 100 5% 1/16W
R89	1-216-700-11	s METAL 2.2K 0.50% 1/16W
R90	1-216-809-11	s METAL, CHIP 100 5% 1/16W
R91	1-216-700-11	s METAL 2.2K 0.50% 1/16W
R92	1-216-829-11	s METAL, CHIP 4.7K 5% 1/16W
R93	1-216-821-11	s METAL, CHIP 1K 5% 1/16W
R94	1-216-829-11	s METAL, CHIP 4.7K 5% 1/16W
R95	1-216-829-11	s METAL, CHIP 4.7K 5% 1/16W
R96	1-216-829-11	s METAL, CHIP 4.7K 5% 1/16W
R97	1-216-829-11	s METAL, CHIP 4.7K 5% 1/16W
R98	1-216-827-11	s METAL, CHIP 3.3K 5% 1/16W
R99	1-216-823-11	s METAL, CHIP 1.5K 5% 1/16W
R100	1-216-821-11	s METAL, CHIP 1K 5% 1/16W
R101	1-216-825-11	s METAL, CHIP 2.2K 5% 1/16W
R102	1-216-825-11	s METAL, CHIP 2.2K 5% 1/16W
R103	1-216-841-11	s METAL, CHIP 47K 5% 1/16W
R104	1-216-821-11	s METAL, CHIP 1K 5% 1/16W
R105	1-216-821-11	s METAL, CHIP 1K 5% 1/16W
R106	1-216-829-11	s METAL, CHIP 4.7K 5% 1/16W
R107	1-216-700-11	s METAL 2.2K 0.50% 1/16W
R108	1-216-700-11	s METAL 2.2K 0.50% 1/16W
R109	1-216-704-11	s METAL 3.3K 0.50% 1/16W
R110	1-216-789-11	s METAL 2.2 5% 1/16W
R111	1-216-797-11	s METAL, CHIP 10 5% 1/16W
R112	1-216-797-11	s METAL, CHIP 10 5% 1/16W
R113	1-216-837-11	s METAL, CHIP 22K 5% 1/16W
R114	1-216-821-11	s METAL, CHIP 1K 5% 1/16W
R115	1-216-688-11	s METAL 680 0.50% 1/16W
R116	1-216-789-11	s METAL 2.2 5% 1/16W
R117	1-216-864-11	s METAL, CHIP 0-OHM
R118	1-216-797-11	s METAL, CHIP 10 5% 1/16W
R119	1-216-797-11	s METAL, CHIP 10 5% 1/16W
R120	1-216-797-11	s METAL, CHIP 10 5% 1/16W
R121	1-216-797-11	s METAL, CHIP 10 5% 1/16W
R122	1-216-700-11	s METAL 2.2K 0.50% 1/16W
R123	1-216-797-11	s METAL, CHIP 10 5% 1/16W
R124	1-216-797-11	s METAL, CHIP 10 5% 1/16W
R125	1-216-823-11	s METAL, CHIP 1.5K 5% 1/16W
R126	1-216-700-11	s METAL 2.2K 0.50% 1/16W
R127	1-216-700-11	s METAL 2.2K 0.50% 1/16W
R128	1-216-835-11	s METAL, CHIP 15K 5% 1/16W
R129	1-216-834-11	s METAL, CHIP 12K 5% 1/16W
R130	1-216-797-11	s METAL, CHIP 10 5% 1/16W
R131	1-216-797-11	s METAL, CHIP 10 5% 1/16W
R132	1-216-797-11	s METAL, CHIP 10 5% 1/16W
R133	1-216-797-11	s METAL, CHIP 10 5% 1/16W
R134	1-216-829-11	s METAL, CHIP 4.7K 5% 1/16W
R135	1-216-839-11	s METAL, CHIP 33K 5% 1/16W
R136	1-216-864-11	s METAL, CHIP 0-OHM
R137	1-216-864-11	s METAL, CHIP 0-OHM
R138	1-216-841-11	s METAL, CHIP 47K 5% 1/16W
R139	1-216-829-11	s METAL, CHIP 4.7K 5% 1/16W
R140	1-216-827-11	s METAL, CHIP 3.3K 5% 1/16W
R141	1-216-825-11	s METAL, CHIP 2.2K 5% 1/16W
R142	1-216-864-11	s METAL, CHIP 0-OHM
R143	1-216-809-11	s METAL, CHIP 100 5% 1/16W

(IF-354P BOARD)

Ref. No.
or Q'ty Part No. SP Description

R144	1-216-826-11	s METAL, CHIP 2.7K 5% 1/16W
R145	1-216-829-11	s METAL, CHIP 4.7K 5% 1/16W
R146	1-216-825-11	s METAL, CHIP 2.2K 5% 1/16W
R147	1-218-708-11	s METAL 4.7K 0.50% 1/16W
R148	1-216-829-11	s METAL, CHIP 4.7K 5% 1/16W
R149	1-218-700-11	s METAL 2.2K 0.50% 1/16W
R150	1-216-827-11	s METAL, CHIP 3.3K 5% 1/16W
R151	1-216-864-11	s METAL, CHIP 0-ΩHM
R152	1-216-826-11	s METAL, CHIP 2.7K 5% 1/16W
R153	1-216-826-11	s METAL, CHIP 2.7K 5% 1/16W
R154	1-216-829-11	s METAL, CHIP 4.7K 5% 1/16W
R155	1-216-821-11	s METAL, CHIP 1K 5% 1/16W
R156	1-216-833-11	s METAL, CHIP 10K 5% 1/16W
R157	1-216-827-11	s METAL, CHIP 3.3K 5% 1/16W
R158	1-218-739-11	s METAL, CHIP 91K 0.50% 1/16W
R159	1-218-700-11	s METAL 2.2K 0.50% 1/16W
RV1	1-238-089-11	s RES, ADJ CERMET 4.7K
RV2	1-238-088-11	s RES, ADJ, CERMET 2.2K
RV3	1-238-088-11	s RES, ADJ, CERMET 2.2K
RV4	1-238-088-11	s RES, ADJ, CERMET 2.2K
RV5	1-238-088-11	s RES, ADJ, CERMET 2.2K
RV6	1-238-088-11	s RES, ADJ, CERMET 2.2K
RV7	1-238-090-11	s RES, ADJ CERMET 10K

MB-380 BOARD

Ref. No.
or Q'ty Part No. SP Description

1pc	A-8271-139-A	o MOUNTED CIRCUIT BOARD, MB-380
C1	1-135-159-21	s TANTALUM, CHIP 10uF 10% 20V
C2	1-135-160-21	s TANTALUM, CHIP 15uF 10% 16V
C3	1-126-925-11	s ELECT 470uF 20% 10V
C4	1-126-916-11	s ELECT 1000uF 20% 6.3
C5	1-162-966-11	s CERAMIC, CHIP 0.0022uF 10% 50V
C6	1-162-966-11	s CERAMIC, CHIP 0.0022uF 10% 50V
C7	1-135-159-21	s TANTALUM, CHIP 10uF 10% 20V
C8	1-135-160-21	s TANTALUM, CHIP 15uF 10% 16V
C9	1-126-935-11	s ELECT 470uF 20% 16V
C10	1-162-919-11	s CERAMIC, CHIP 22PF 5% 50V
C15	1-135-159-21	s TANTALUM, CHIP 10uF 10% 20V
CN1	1-565-151-11	o PIN, CONNECTOR (ANGLE) 4P
CN2	1-691-630-21	o CONNECTOR, FFC/FPC (ZIF) 20P
CN3	1-568-338-11	s CONNECTOR, BOARD TO BOARD 24P
CN4	1-568-338-11	s CONNECTOR, BOARD TO BOARD 24P
CN5	1-568-338-11	s CONNECTOR, BOARD TO BOARD 24P
CN6	1-568-338-11	s CONNECTOR, BOARD TO BOARD 24P
CN7	1-568-338-11	s CONNECTOR, BOARD TO BOARD 24P
CN8	1-568-338-11	s CONNECTOR, BOARD TO BOARD 24P
CN9	1-568-338-11	s CONNECTOR, BOARD TO BOARD 24P
CN10	1-690-670-12	s CABLE, FLAT (1.0MM) 15P
CN11	1-690-670-12	s CABLE, FLAT (1.0MM) 15P
CN12	1-565-150-11	o PIN, CONNECTOR (ANGLE) 3P
D1	8-719-017-34	s DIODE 02DZ20-TPHR3
IC1	8-759-009-10	s IC MC14069UBF
IC2	8-759-927-46	s IC SN74HC00NS
IC3	8-759-209-57	s IC TC4S69F
L1	1-412-032-11	s INDUCTOR CHIP 100uH
L2	1-412-032-11	s INDUCTOR CHIP 100uH
L4	1-412-026-11	s INDUCTOR CHIP 1uH
L5	1-410-997-31	s INDUCTOR CHIP 2.2uH
L6	1-410-997-31	s INDUCTOR CHIP 2.2uH
L7	1-410-997-31	s INDUCTOR CHIP 2.2uH
L8	1-410-997-31	s INDUCTOR CHIP 2.2uH
L9	1-412-535-41	s INDUCTOR 68uH
PW1	1-466-696-11	s CONVERTER (DC-DC)
R1	1-216-833-11	s METAL, CHIP 10K 5% 1/16W
R2	1-216-833-11	s METAL, CHIP 10K 5% 1/16W
R3	1-216-804-11	s METAL 39 5% 1/16W
R4	1-216-804-11	s METAL 39 5% 1/16W
R5	1-216-804-11	s METAL 39 5% 1/16W
R6	1-216-804-11	s METAL 39 5% 1/16W

PA-133 BOARD

Ref. No.
or Q'ty Part No. SP Description

1pc	A-8271-136-A	o MOUNTED CIRCUIT BOARD, PA-133
C2	1-162-970-11	s CERAMIC, CHIP 0.01uF 10% 25V
C3	1-162-970-11	s CERAMIC, CHIP 0.01uF 10% 25V
C4	1-135-162-21	s TANTALUM, CHIP 33uF 10% 6.3V
C5	1-135-154-21	s TANTALUM, CHIP 3.3uF 20% 20V
C6	1-162-970-11	s CERAMIC, CHIP 0.01uF 10% 25V
C7	1-135-180-21	s TANTALUM, CHIP 3.3uF 20% 6.3V
C8	1-162-970-11	s CERAMIC, CHIP 0.01uF 10% 25V
C9	1-135-154-21	s TANTALUM, CHIP 3.3uF 20% 20V
C10	1-135-159-21	s TANTALUM, CHIP 10uF 10% 20V
C11	1-135-157-21	s TANTALUM, CHIP 10uF 10% 6.3V
C12	1-164-156-11	s CERAMIC 0.1uF 25V
C13	1-135-167-21	s TANTALUM, CHIP 68uF 20% 6.3V
C14	1-135-159-21	s TANTALUM, CHIP 10uF 10% 20V
C15	1-135-159-21	s TANTALUM, CHIP 10uF 10% 20V
C16	1-135-159-21	s TANTALUM, CHIP 10uF 10% 20V
IC2	8-759-031-84	s IC SC7S04F
IC3	8-759-031-84	s IC SC7S04F
IC4	8-752-052-72	s IC CXA1439M
L1	1-412-032-11	s INDUCTOR CHIP 100uH
L2	1-412-029-11	s INDUCTOR CHIP 10uH
Q1	8-729-905-24	s TRANSISTOR 2SA1576S
Q2	8-729-926-19	s TRANSISTOR 2SC4103-Q
R1	1-216-822-11	s METAL, CHIP 1.2K 5% 1/16W
R2	1-216-835-11	s METAL, CHIP 15K 5% 1/16W
R3	1-216-838-11	s METAL, CHIP 27K 5% 1/16W
R4	1-216-848-11	s METAL, CHIP 180K 5% 1/16W
R5	1-216-830-11	s METAL, CHIP 5.6K 5% 1/16W
R8	1-216-864-11	s METAL, CHIP 0-OHM
R9	1-216-864-11	s METAL, CHIP 0-OHM

PA-134 BOARD

Ref. No.
or Q'ty Part No. SP Description

1pc	A-8271-138-A	o MOUNTED CIRCUIT BOARD, PA-134
C2	1-162-970-11	s CERAMIC, CHIP 0.01uF 10% 25V
C3	1-162-970-11	s CERAMIC, CHIP 0.01uF 10% 25V
C4	1-135-162-21	s TANTALUM, CHIP 33uF 10% 6.3V
C5	1-135-154-21	s TANTALUM, CHIP 3.3uF 20% 20V
C6	1-162-970-11	s CERAMIC, CHIP 0.01uF 10% 25V
C7	1-135-180-21	s TANTALUM, CHIP 3.3uF 20% 6.3V
C8	1-162-970-11	s CERAMIC, CHIP 0.01uF 10% 25V
C9	1-135-154-21	s TANTALUM, CHIP 3.3uF 20% 20V
C10	1-135-159-21	s TANTALUM, CHIP 10uF 10% 20V
C11	1-135-157-21	s TANTALUM, CHIP 10uF 10% 6.3V
C12	1-164-156-11	s CERAMIC 0.1uF 25V
C13	1-135-167-21	s TANTALUM, CHIP 68uF 20% 6.3V
C14	1-135-164-21	s TANTALUM, CHIP 22uF 20% 10V
C15	1-135-164-21	s TANTALUM, CHIP 22uF 20% 10V
IC2	8-759-031-84	s IC SC7S04F
IC3	8-752-052-72	s IC CXA1439M
IC4	8-759-031-84	s IC SC7S04F
L1	1-412-032-11	s INDUCTOR CHIP 100uH
L2	1-412-029-11	s INDUCTOR CHIP 10uH
Q1	8-729-905-24	s TRANSISTOR 2SA1576S
Q2	8-729-926-19	s TRANSISTOR 2SC4103-Q
R1	1-216-822-11	s METAL, CHIP 1.2K 5% 1/16W
R2	1-216-835-11	s METAL, CHIP 15K 5% 1/16W
R3	1-216-838-11	s METAL, CHIP 27K 5% 1/16W
R4	1-216-848-11	s METAL, CHIP 180K 5% 1/16W
R5	1-216-830-11	s METAL, CHIP 5.6K 5% 1/16W
R8	1-216-864-11	s METAL, CHIP 0-OHM
R9	1-216-864-11	s METAL, CHIP 0-OHM

PR-158 BOARD

Ref. No.
or Q'ty Part No. SP Description

1pc	A-8271-146-A o MOUNTED CIRCUIT BOARD, PR-158 (DXC-930/960MD,XC-009)
C1	1-135-180-21 s TANTALUM, CHIP 3.3uF 20% 6.3V
C2	1-162-910-11 s CERAMIC 5PF 0.25PF 50V
C3	1-135-091-00 s TANTALUN, CHIP 1uF 10% 16V
C4	1-135-091-00 s TANTALUN, CHIP 1uF 10% 16V
C5	1-135-091-00 s TANTALUN, CHIP 1uF 10% 16V
C6	1-126-391-11 s ELECT, CHIP 47uF 20% 6.3V
C7	1-135-091-00 s TANTALUN, CHIP 1uF 10% 16V
C8	1-135-091-00 s TANTALUN, CHIP 1uF 10% 16V
C9	1-162-927-11 s CERAMIC, CHIP 100PF 5% 50V
C10	1-135-091-00 s TANTALUN, CHIP 1uF 10% 16V
C11	1-135-155-21 s TANTAL CHIP 4.7uF 10% 16V
C12	1-164-156-11 s CERAMIC 0.1uF 25V
C13	1-135-091-00 s TANTALUN, CHIP 1uF 10% 16V
C14	1-135-167-21 s TANTALUM, CHIP 68uF 20% 6.3V
C15	1-126-391-11 s ELECT, CHIP 47uF 20% 6.3V
C16	1-135-162-21 s TANTALUM, CHIP 33uF 10% 6.3V
C17	1-135-162-21 s TANTALUM, CHIP 33uF 10% 6.3V
C18	1-135-091-00 s TANTALUN, CHIP 1uF 10% 16V
C19	1-164-156-11 s CERAMIC 0.1uF 25V
C20	1-164-156-11 s CERAMIC 0.1uF 25V
C21	1-162-910-11 s CERAMIC 5PF 0.25PF 50V
C22	1-135-091-00 s TANTALUN, CHIP 1uF 10% 16V
C23	1-164-156-11 s CERAMIC 0.1uF 25V
C24	1-135-091-00 s TANTALUN, CHIP 1uF 10% 16V
C25	1-164-156-11 s CERAMIC 0.1uF 25V
C26	1-135-091-00 s TANTALUN, CHIP 1uF 10% 16V
C27	1-164-156-11 s CERAMIC 0.1uF 25V
C28	1-164-156-11 s CERAMIC 0.1uF 25V
C29	1-164-156-11 s CERAMIC 0.1uF 25V
C30	1-164-156-11 s CERAMIC 0.1uF 25V
C31	1-162-927-11 s CERAMIC, CHIP 100PF 5% 50V
C32	1-135-155-21 s TANTAL CHIP 4.7uF 10% 16V
C33	1-135-091-00 s TANTALUN, CHIP 1uF 10% 16V
C34	1-135-162-21 s TANTALUM, CHIP 33uF 10% 6.3V
C35	1-135-155-21 s TANTAL CHIP 4.7uF 10% 16V
C36	1-135-091-00 s TANTALUN, CHIP 1uF 10% 16V
C37	1-164-156-11 s CERAMIC 0.1uF 25V
C38	1-135-091-00 s TANTALUN, CHIP 1uF 10% 16V
C39	1-135-167-21 s TANTALUM, CHIP 68uF 20% 6.3V
C40	1-135-091-00 s TANTALUN, CHIP 1uF 10% 16V
C41	1-162-964-11 s CERAMIC 0.001uF 10% 50V
C42	1-162-927-11 s CERAMIC, CHIP 100PF 5% 50V
C43	1-135-091-00 s TANTALUN, CHIP 1uF 10% 16V
C44	1-135-155-21 s TANTAL CHIP 4.7uF 10% 16V
C45	1-135-177-21 s TANTALUM, CHIP 1uF 10% 20V
C46	1-135-157-21 s TANTALUM, CHIP 10uF 10% 6.3V
C47	1-135-167-21 s TANTALUM, CHIP 68uF 20% 6.3V
C48	1-135-159-21 s TANTALUM, CHIP 10uF 10% 20V
C49	1-135-159-21 s TANTALUM, CHIP 10uF 10% 20V
C50	1-162-910-11 s CERAMIC 5PF 0.25PF 50V
C51	1-135-091-00 s TANTALUN, CHIP 1uF 10% 16V
C52	1-135-091-00 s TANTALUN, CHIP 1uF 10% 16V
C53	1-135-091-00 s TANTALUN, CHIP 1uF 10% 16V
C54	1-135-155-21 s TANTAL CHIP 4.7uF 10% 16V
C55	1-135-162-21 s TANTALUM, CHIP 33uF 10% 6.3V
C56	1-162-927-11 s CERAMIC, CHIP 100PF 5% 50V

(PR-158 BOARD)

Ref. No. or Q'ty	Part No.	SP Description
C57	1-164-156-11 s CERAMIC 0.1uF 25V	
C58	1-164-156-11 s CERAMIC 0.1uF 25V	
C59	1-164-156-11 s CERAMIC 0.1uF 25V	
C60	1-135-155-21 s TANTAL CHIP 4.7uF 10% 16V	
C61	1-135-091-00 s TANTALUN, CHIP 1uF 10% 16V	
C62	1-135-177-21 s TANTALUM, CHIP 1uF 10% 20V	
C63	1-135-177-21 s TANTALUM, CHIP 1uF 10% 20V	
C64	1-135-177-21 s TANTALUM, CHIP 1uF 10% 20V	
C65	1-164-156-11 s CERAMIC 0.1uF 25V	
C66	1-135-210-11 s TANTALUM 4.7uF 20% 10V	
C67	1-135-091-00 s TANTALUN, CHIP 1uF 10% 16V	
C68	1-135-155-21 s TANTAL CHIP 4.7uF 10% 16V	
C69	1-162-927-11 s CERAMIC, CHIP 100PF 5% 50V	
C70	1-162-949-11 s CERAMIC 47PF 5% 50V	
C71	1-162-915-11 s CERAMIC, CHIP 10PF 5PF 50V	
C72	1-135-157-21 s TANTALUM, CHIP 10uF 10% 6.3V	
C73	1-164-156-11 s CERAMIC 0.1uF 25V	
C74	1-135-157-21 s TANTALUM, CHIP 10uF 10% 6.3V	
C75	1-135-091-00 s TANTALUN, CHIP 1uF 10% 16V	
C76	1-164-156-11 s CERAMIC 0.1uF 25V	
C77	1-135-167-21 s TANTALUM, CHIP 68uF 20% 6.3V	
C78	1-135-177-21 s TANTALUM, CHIP 1uF 10% 20V	
C79	1-135-180-21 s TANTALUM, CHIP 3.3uF 20% 6.3V	
C80	1-135-180-21 s TANTALUM, CHIP 3.3uF 20% 6.3V	
C81	1-135-210-11 s TANTALUM 4.7uF 20% 10V	
C82	1-135-210-11 s TANTALUM 4.7uF 20% 10V	
C83	1-135-159-21 s TANTALUM, CHIP 10uF 10% 20V	
C84	1-162-927-11 s CERAMIC, CHIP 100PF 5% 50V	
C85	1-162-921-11 s CERAMIC, CHIP 33PF 5% 50V	
C86	1-162-921-11 s CERAMIC, CHIP 33PF 5% 50V	
C87	1-135-159-21 s TANTALUM, CHIP 10uF 10% 20V	
C88	1-164-156-11 s CERAMIC 0.1uF 25V	
C89	1-135-161-21 s TANTALUM, CHIP 22uF 10% 10V	
C90	1-135-180-21 s TANTALUM, CHIP 3.3uF 20% 6.3V	
C91	1-162-927-11 s CERAMIC, CHIP 100PF 5% 50V	
C92	1-162-970-11 s CERAMIC, CHIP 0.01uF 10% 25V	
C93	1-162-927-11 s CERAMIC, CHIP 100PF 5% 50V	
C94	1-135-208-11 s TANTALUM 1uF 20% 10V	
C95	1-162-970-11 s CERAMIC, CHIP 0.01uF 10% 25V	
C97	1-135-180-21 s TANTALUM, CHIP 3.3uF 20% 6.3V	
C98	1-135-157-21 s TANTALUM, CHIP 10uF 10% 6.3V	
C99	1-135-210-11 s TANTALUM 4.7uF 20% 10V	
C100	1-164-156-11 s CERAMIC 0.1uF 25V	
C101	1-164-156-11 s CERAMIC 0.1uF 25V	
C102	1-162-920-11 s CERAMIC, CHIP 27PF 5% 50V	
C103	1-162-927-11 s CERAMIC, CHIP 100PF 5% 50V	
C104	1-164-156-11 s CERAMIC 0.1uF 25V	
C105	1-135-161-21 s TANTALUM, CHIP 22uF 10% 10V	
C106	1-135-152-21 s TANTALUM, CHIP 1.5uF 10% 25V	
C107	1-135-157-21 s TANTALUM, CHIP 10uF 10% 6.3V	
C108	1-162-921-11 s CERAMIC, CHIP 33PF 5% 50V	
C109	1-162-921-11 s CERAMIC, CHIP 33PF 5% 50V	
C110	1-162-925-11 s CERAMIC, CHIP 68PF 5% 50V	
C111	1-135-161-21 s TANTALUM, CHIP 22uF 10% 10V	
C112	1-135-157-21 s TANTALUM, CHIP 10uF 10% 6.3V	
C113	1-135-157-21 s TANTALUM, CHIP 10uF 10% 6.3V	
C114	1-162-920-11 s CERAMIC, CHIP 27PF 5% 50V	
C115	1-162-962-11 s CERAMIC 470PF 10% 50V	
C116	1-162-927-11 s CERAMIC, CHIP 100PF 5% 50V	

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Ref. No. or Q'ty	Part No.	SP Description
C117	1-126-391-11	s ELECT, CHIP 47uF 20% 6.3V
C118	1-135-159-21	s TANTALUM, CHIP 10uF 10% 20V
C119	1-164-156-11	s CERAMIC 0.1uF 25V
C120	1-162-918-11	s CERAMIC, CHIP 18PF 5% 50V
C121	1-135-159-21	s TANTALUM, CHIP 10uF 10% 20V
C122	1-135-157-21	s TANTALUM, CHIP 10uF 10% 6.3V
C123	1-135-157-21	s TANTALUM, CHIP 10uF 10% 6.3V
C124	1-135-180-21	s TANTALUM, CHIP 3.3uF 20% 6.3V
C125	1-135-155-21	s TANTAL CHIP 4.7uF 10% 16V
C126	1-135-180-21	s TANTALUM, CHIP 3.3uF 20% 6.3V
C127	1-162-964-11	s CERAMIC 0.001uF 10% 50V
C128	1-162-927-11	s CERAMIC, CHIP 100PF 5% 50V
CN1	1-569-607-11	s CONNECTOR, BOARD TO BOARD 24P
CN2	1-569-607-11	s CONNECTOR, BOARD TO BOARD 24P
D1	8-719-123-85	s DIODE 1SS304
D2	8-719-123-85	s DIODE 1SS304
DL1	1-415-730-21	s DELAY LINE, LC 100nS
DL2	1-415-730-21	s DELAY LINE, LC 100nS
DL3	1-415-730-21	s DELAY LINE, LC 100nS
DL4	1-415-864-21	s DELAY LINE, LC
DL5	1-415-763-21	s DELAY LINE, LC
DL6	1-415-730-21	s DELAY LINE, LC 100nS
DL7	1-415-730-21	s DELAY LINE, LC 100nS
DL8	1-415-730-21	s DELAY LINE, LC 100nS
FL1	1-409-496-21	s FILTER, LC TRAP
FL2	1-409-496-21	s FILTER, LC TRAP
FL3	1-409-496-21	s FILTER, LC TRAP
FL4	1-239-212-21	s FILTER, BAND PASS
IC1	8-759-030-16	s IC MC34182M
IC2	8-759-300-71	s IC HD14053BFP
IC3	8-759-234-77	s IC TC4S66F
IC4	8-759-234-77	s IC TC4S66F
IC5	8-759-209-57	s IC TC4S69F
IC6	8-759-030-16	s IC MC34182M
IC7	8-759-234-77	s IC TC4S66F
IC8	8-759-052-67	s IC UPC2372GF-3B9
IC9	8-759-030-16	s IC MC34182M
IC10	8-759-927-46	s IC SN74HC00NS
IC11	8-759-926-37	s IC SN74HC193ANS
IC12	8-759-925-83	s IC SN74HC27NS
IC13	8-759-635-27	s IC M62352GP-E1
IC14	8-759-906-59	s IC CX22017
IC15	8-759-209-57	s IC TC4S69F
IC16	8-759-635-27	s IC M62352GP-E1
IC17	8-752-056-59	s IC CXA1592R
IC18	8-759-635-27	s IC M62352GP-E1
L1	1-412-030-11	s INDUCTOR CHIP 22uH
L2	1-412-030-11	s INDUCTOR CHIP 22uH
L3	1-412-030-11	s INDUCTOR CHIP 22uH
L4	1-412-030-11	s INDUCTOR CHIP 22uH
L5	1-412-032-11	s INDUCTOR CHIP 100uH
L6	1-412-032-11	s INDUCTOR CHIP 100uH
L7	1-412-032-11	s INDUCTOR CHIP 100uH
L8	1-412-030-11	s INDUCTOR CHIP 22uH
L12	1-412-034-11	s INDUCTOR CHIP 330uH
L13	1-412-034-11	s INDUCTOR CHIP 330uH

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Ref. No. or Q'ty	Part No.	SP Description
L14	1-412-032-11	s INDUCTOR CHIP 100uH
LV1	1-414-071-21	s COIL, VAR
Q1	8-729-117-16	s TRANSISTOR 2SA1611-M6
Q2	8-729-427-83	s TRANSISTOR XP6501
Q3	8-729-117-32	s TRANSISTOR 2SC4177
Q4	8-729-117-32	s TRANSISTOR 2SC4177
Q5	8-729-117-32	s TRANSISTOR 2SC4177
Q6	8-729-926-19	s TRANSISTOR 2SC4103-Q
Q7	8-729-926-19	s TRANSISTOR 2SC4103-Q
Q8	8-729-118-58	s TRANSISTOR 2SK852-X4
Q9	8-729-117-32	s TRANSISTOR 2SC4177
Q10	8-729-117-16	s TRANSISTOR 2SA1611-M6
Q11	8-729-117-32	s TRANSISTOR 2SC4177
Q12	8-729-117-32	s TRANSISTOR 2SC4177
Q13	8-729-926-19	s TRANSISTOR 2SC4103-Q
Q14	8-729-117-32	s TRANSISTOR 2SC4177
Q15	8-729-117-32	s TRANSISTOR 2SC4177
Q16	8-729-117-32	s TRANSISTOR 2SC4177
Q17	8-729-117-16	s TRANSISTOR 2SA1611-M6
Q18	8-729-427-83	s TRANSISTOR XP6501
Q19	8-729-117-32	s TRANSISTOR 2SC4177
Q20	8-729-117-32	s TRANSISTOR 2SC4177
Q21	8-729-117-32	s TRANSISTOR 2SC4177
Q22	8-729-117-16	s TRANSISTOR 2SA1611-M6
Q23	8-729-926-19	s TRANSISTOR 2SC4103-Q
Q24	8-729-926-19	s TRANSISTOR 2SC4103-Q
Q25	8-729-117-32	s TRANSISTOR 2SC4177
Q26	8-729-427-83	s TRANSISTOR XP6501
Q27	8-729-117-32	s TRANSISTOR 2SC4177
Q28	8-729-117-32	s TRANSISTOR 2SC4177
Q29	8-729-117-32	s TRANSISTOR 2SC4177
Q30	8-729-926-19	s TRANSISTOR 2SC4103-Q
Q31	8-729-117-32	s TRANSISTOR 2SC4177
Q32	8-729-117-32	s TRANSISTOR 2SC4177
Q33	8-729-117-16	s TRANSISTOR 2SA1611-M6
Q34	8-729-117-16	s TRANSISTOR 2SA1611-M6
Q35	8-729-427-83	s TRANSISTOR XP6501
Q36	8-729-926-19	s TRANSISTOR 2SC4103-Q
Q37	8-729-926-19	s TRANSISTOR 2SC4103-Q
Q38	8-729-118-58	s TRANSISTOR 2SK852-X4
Q39	8-729-117-16	s TRANSISTOR 2SA1611-M6
Q40	8-729-117-32	s TRANSISTOR 2SC4177
Q41	8-729-117-32	s TRANSISTOR 2SC4177
Q42	8-729-427-74	s TRANSISTOR XP4601
Q43	8-729-117-32	s TRANSISTOR 2SC4177
Q44	8-729-427-83	s TRANSISTOR XP6501
Q45	8-729-117-32	s TRANSISTOR 2SC4177
Q46	8-729-926-19	s TRANSISTOR 2SC4103-Q
Q47	8-729-117-32	s TRANSISTOR 2SC4177
Q48	8-729-117-32	s TRANSISTOR 2SC4177
Q49	8-729-427-83	s TRANSISTOR XP6501
Q50	8-729-429-98	s TRANSISTOR XP1401
Q51	8-729-117-32	s TRANSISTOR 2SC4177
Q52	8-729-117-32	s TRANSISTOR 2SC4177
Q53	8-729-926-19	s TRANSISTOR 2SC4103-Q
Q54	8-729-117-32	s TRANSISTOR 2SC4177
Q55	8-729-117-32	s TRANSISTOR 2SC4177

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Ref. No.
or Q'ty Part No. SP Description

Q56 8-729-427-83 s TRANSISTOR XP6501
 Q57 8-729-117-16 s TRANSISTOR 2SA1611-M6
 Q58 8-729-117-16 s TRANSISTOR 2SA1611-M6
 Q59 8-729-117-16 s TRANSISTOR 2SA1611-M6
 Q60 8-729-117-16 s TRANSISTOR 2SA1611-M6

Q61 8-729-117-32 s TRANSISTOR 2SC4177
 Q62 8-729-117-16 s TRANSISTOR 2SA1611-M6
 Q63 8-729-117-32 s TRANSISTOR 2SC4177
 Q64 8-729-427-83 s TRANSISTOR XP6501
 Q65 8-729-926-19 s TRANSISTOR 2SC4103-Q

Q66 8-729-117-16 s TRANSISTOR 2SA1611-M6
 Q67 8-729-117-32 s TRANSISTOR 2SC4177
 Q68 8-729-117-16 s TRANSISTOR 2SA1611-M6
 Q69 8-729-117-32 s TRANSISTOR 2SC4177
 Q70 8-729-926-19 s TRANSISTOR 2SC4103-Q

Q71 8-729-117-16 s TRANSISTOR 2SA1611-M6
 Q72 8-729-117-16 s TRANSISTOR 2SA1611-M6
 Q73 8-729-117-16 s TRANSISTOR 2SA1611-M6
 Q74 8-729-117-32 s TRANSISTOR 2SC4177
 Q75 8-729-117-32 s TRANSISTOR 2SC4177

Q76 8-729-117-32 s TRANSISTOR 2SC4177
 Q77 8-729-926-19 s TRANSISTOR 2SC4103-Q
 Q78 8-729-117-32 s TRANSISTOR 2SC4177
 Q79 8-729-117-32 s TRANSISTOR 2SC4177
 Q80 8-729-926-19 s TRANSISTOR 2SC4103-Q

Q81 8-729-117-16 s TRANSISTOR 2SA1611-M6
 Q82 8-729-117-32 s TRANSISTOR 2SC4177
 Q83 8-729-117-32 s TRANSISTOR 2SC4177
 Q84 8-729-117-16 s TRANSISTOR 2SA1611-M6
 Q85 8-729-117-32 s TRANSISTOR 2SC4177

Q87 8-729-117-32 s TRANSISTOR 2SC4177
 Q89 8-729-117-32 s TRANSISTOR 2SC4177
 Q90 8-729-117-32 s TRANSISTOR 2SC4177

R1 1-216-821-11 s METAL, CHIP 1K 5% 1/16W
 R2 1-216-828-11 s METAL, CHIP 3.9K 5% 1/16W
 R3 1-216-828-11 s METAL, CHIP 3.9K 5% 1/16W
 R4 1-218-330-11 s METAL 11K 0.50% 1/16W
 R5 1-216-832-11 s METAL, CHIP 8.2K 5% 1/16W

R6 1-216-833-11 s METAL, CHIP 10K 5% 1/16W
 R7 1-216-817-11 s METAL, CHIP 470 5% 1/16W
 R8 1-220-373-11 s METAL 620 0.50% 1/16W
 R9 1-216-825-11 s METAL, CHIP 2.2K 5% 1/16W
 R10 1-218-457-11 s METAL 910 0.50% 1/16W

R11 1-218-700-11 s METAL 2.2K 0.50% 1/16W
 R12 1-216-836-11 s METAL, CHIP 18K 5% 1/16W
 R13 1-216-821-11 s METAL, CHIP 1K 5% 1/16W
 R14 1-216-821-11 s METAL, CHIP 1K 5% 1/16W
 R15 1-216-840-11 s METAL, CHIP 39K 5% 1/16W

R16 1-216-845-11 s METAL, CHIP 100K 5% 1/16W
 R17 1-216-824-11 s METAL, CHIP 1.8K 5% 1/16W
 R18 1-216-827-11 s METAL, CHIP 3.3K 5% 1/16W
 R19 1-216-850-11 s METAL 270K 5% 1/16W
 R20 1-216-833-11 s METAL, CHIP 10K 5% 1/16W

R21 1-216-826-11 s METAL, CHIP 2.7K 5% 1/16W
 R22 1-216-821-11 s METAL, CHIP 1K 5% 1/16W
 R23 1-216-828-11 s METAL, CHIP 3.9K 5% 1/16W
 R24 1-218-724-11 s METAL 22K 0.50% 1/16W
 R25 1-216-821-11 s METAL, CHIP 1K 5% 1/16W

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Ref. No.
or Q'ty Part No. SP Description

R26 1-216-821-11 s METAL, CHIP 1K 5% 1/16W
 R27 1-218-484-11 s METAL 750 0.50% 1/16W
 R28 1-216-821-11 s METAL, CHIP 1K 5% 1/16W
 R29 1-216-833-11 s METAL, CHIP 10K 5% 1/16W
 R30 1-218-705-11 s METAL 3.6K 0.50% 1/16W

R31 1-216-829-11 s METAL, CHIP 4.7K 5% 1/16W
 R32 1-216-825-11 s METAL, CHIP 2.2K 5% 1/16W
 R33 1-216-829-11 s METAL, CHIP 4.7K 5% 1/16W
 R34 1-216-827-11 s METAL, CHIP 3.3K 5% 1/16W
 R35 1-216-821-11 s METAL, CHIP 1K 5% 1/16W

R36 1-216-829-11 s METAL, CHIP 4.7K 5% 1/16W
 R37 1-216-828-11 s METAL, CHIP 3.9K 5% 1/16W
 R38 1-216-831-11 s METAL, CHIP 6.8K 5% 1/16W
 R39 1-216-828-11 s METAL, CHIP 3.9K 5% 1/16W
 R40 1-216-828-11 s METAL, CHIP 3.9K 5% 1/16W

R41 1-216-831-11 s METAL, CHIP 6.8K 5% 1/16W
 R42 1-216-831-11 s METAL, CHIP 6.8K 5% 1/16W
 R43 1-216-833-11 s METAL, CHIP 10K 5% 1/16W
 R44 1-216-831-11 s METAL, CHIP 6.8K 5% 1/16W
 R45 1-216-823-11 s METAL, CHIP 1.5K 5% 1/16W

R46 1-216-832-11 s METAL, CHIP 8.2K 5% 1/16W
 R47 1-216-823-11 s METAL, CHIP 1.5K 5% 1/16W
 R48 1-218-700-11 s METAL 2.2K 0.50% 1/16W
 R49 1-216-836-11 s METAL, CHIP 18K 5% 1/16W
 R50 1-216-841-11 s METAL, CHIP 47K 5% 1/16W

R51 1-216-825-11 s METAL, CHIP 2.2K 5% 1/16W
 R52 1-216-821-11 s METAL, CHIP 1K 5% 1/16W
 R53 1-216-833-11 s METAL, CHIP 10K 5% 1/16W
 R54 1-216-840-11 s METAL, CHIP 39K 5% 1/16W
 R55 1-216-845-11 s METAL, CHIP 100K 5% 1/16W

R56 1-216-824-11 s METAL, CHIP 1.8K 5% 1/16W
 R57 1-216-827-11 s METAL, CHIP 3.3K 5% 1/16W
 R58 1-216-826-11 s METAL, CHIP 2.7K 5% 1/16W
 R59 1-216-821-11 s METAL, CHIP 1K 5% 1/16W
 R60 1-216-828-11 s METAL, CHIP 3.9K 5% 1/16W

R62 1-216-825-11 s METAL, CHIP 2.2K 5% 1/16W
 R63 1-216-821-11 s METAL, CHIP 1K 5% 1/16W
 R64 1-216-821-11 s METAL, CHIP 1K 5% 1/16W
 R65 1-216-827-11 s METAL, CHIP 3.3K 5% 1/16W
 R66 1-216-828-11 s METAL, CHIP 3.9K 5% 1/16W

R67 1-216-828-11 s METAL, CHIP 3.9K 5% 1/16W
 R68 1-218-484-11 s METAL 750 0.50% 1/16W
 R69 1-216-821-11 s METAL, CHIP 1K 5% 1/16W
 R70 1-216-833-11 s METAL, CHIP 10K 5% 1/16W
 R71 1-216-821-11 s METAL, CHIP 1K 5% 1/16W

R72 1-218-705-11 s METAL 3.6K 0.50% 1/16W
 R73 1-216-829-11 s METAL, CHIP 4.7K 5% 1/16W
 R74 1-216-825-11 s METAL, CHIP 2.2K 5% 1/16W
 R75 1-216-829-11 s METAL, CHIP 4.7K 5% 1/16W
 R76 1-216-827-11 s METAL, CHIP 3.3K 5% 1/16W

R77 1-216-821-11 s METAL, CHIP 1K 5% 1/16W
 R78 1-216-829-11 s METAL, CHIP 4.7K 5% 1/16W
 R79 1-216-831-11 s METAL, CHIP 6.8K 5% 1/16W
 R80 1-216-833-11 s METAL, CHIP 10K 5% 1/16W
 R81 1-216-821-11 s METAL, CHIP 1K 5% 1/16W

R82 1-216-821-11 s METAL, CHIP 1K 5% 1/16W
 R83 1-216-837-11 s METAL, CHIP 22K 5% 1/16W
 R84 1-216-832-11 s METAL, CHIP 8.2K 5% 1/16W
 R85 1-216-817-11 s METAL, CHIP 470 5% 1/16W

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Ref. No.
or Q'ty Part No. SP Description

R86 1-216-821-11 s METAL, CHIP 1K 5% 1/16W
 R87 1-216-821-11 s METAL, CHIP 1K 5% 1/16W
 R88 1-218-700-11 s METAL 2.2K 0.50% 1/16W
 R89 1-216-836-11 s METAL, CHIP 18K 5% 1/16W
 R90 1-216-821-11 s METAL, CHIP 1K 5% 1/16W

R91 1-216-840-11 s METAL, CHIP 39K 5% 1/16W
 R92 1-216-845-11 s METAL, CHIP 100K 5% 1/16W
 R93 1-216-824-11 s METAL, CHIP 1.8K 5% 1/16W
 R94 1-216-827-11 s METAL, CHIP 3.3K 5% 1/16W
 R95 1-216-850-11 s METAL 270K 5% 1/16W

R96 1-216-833-11 s METAL, CHIP 10K 5% 1/16W
 R97 1-216-826-11 s METAL, CHIP 2.7K 5% 1/16W
 R98 1-216-821-11 s METAL, CHIP 1K 5% 1/16W
 R99 1-216-828-11 s METAL, CHIP 3.9K 5% 1/16W
 R100 1-216-833-11 s METAL, CHIP 10K 5% 1/16W

R101 1-216-833-11 s METAL, CHIP 10K 5% 1/16W
 R102 1-216-832-11 s METAL, CHIP 8.2K 5% 1/16W
 R103 1-216-825-11 s METAL, CHIP 2.2K 5% 1/16W
 R104 1-216-821-11 s METAL, CHIP 1K 5% 1/16W
 R105 1-216-845-11 s METAL, CHIP 100K 5% 1/16W

R106 1-216-825-11 s METAL, CHIP 2.2K 5% 1/16W
 R107 1-216-833-11 s METAL, CHIP 10K 5% 1/16W
 R108 1-216-845-11 s METAL, CHIP 100K 5% 1/16W
 R109 1-216-825-11 s METAL, CHIP 2.2K 5% 1/16W
 R110 1-216-825-11 s METAL, CHIP 2.2K 5% 1/16W

R111 1-216-825-11 s METAL, CHIP 2.2K 5% 1/16W
 R112 1-216-841-11 s METAL, CHIP 47K 5% 1/16W
 R113 1-216-833-11 s METAL, CHIP 10K 5% 1/16W
 R114 1-216-821-11 s METAL, CHIP 1K 5% 1/16W
 R115 1-216-821-11 s METAL, CHIP 1K 5% 1/16W

R116 1-216-833-11 s METAL, CHIP 10K 5% 1/16W
 R117 1-216-841-11 s METAL, CHIP 47K 5% 1/16W
 R118 1-216-821-11 s METAL, CHIP 1K 5% 1/16W
 R119 1-216-830-11 s METAL, CHIP 5.6K 5% 1/16W
 R120 1-216-833-11 s METAL, CHIP 10K 5% 1/16W

R121 1-216-833-11 s METAL, CHIP 10K 5% 1/16W
 R122 1-216-833-11 s METAL, CHIP 10K 5% 1/16W
 R123 1-218-484-11 s METAL 750 0.50% 1/16W
 R124 1-216-821-11 s METAL, CHIP 1K 5% 1/16W
 R125 1-216-825-11 s METAL, CHIP 2.2K 5% 1/16W

R126 1-218-705-11 s METAL 3.6K 0.50% 1/16W
 R127 1-216-829-11 s METAL, CHIP 4.7K 5% 1/16W
 R128 1-216-825-11 s METAL, CHIP 2.2K 5% 1/16W
 R129 1-216-829-11 s METAL, CHIP 4.7K 5% 1/16W
 R130 1-216-827-11 s METAL, CHIP 3.3K 5% 1/16W

R131 1-216-821-11 s METAL, CHIP 1K 5% 1/16W
 R132 1-216-829-11 s METAL, CHIP 4.7K 5% 1/16W
 R133 1-216-831-11 s METAL, CHIP 6.8K 5% 1/16W
 R134 1-216-825-11 s METAL, CHIP 2.2K 5% 1/16W
 R135 1-216-833-11 s METAL, CHIP 10K 5% 1/16W

R136 1-218-700-11 s METAL 2.2K 0.50% 1/16W
 R137 1-218-253-11 s METAL, CHIP 2.32K 0.5% 1/10W
 R138 1-218-255-11 s METAL, CHIP 2.67K 0.5% 1/10W
 R139 1-218-700-11 s METAL 2.2K 0.50% 1/16W
 R140 1-216-795-11 s METAL 6.8K 0.50% 1/16W

R141 1-216-865-11 s METAL 3K 0.50% 1/16W
 R142 1-216-836-11 s METAL, CHIP 18K 5% 1/16W
 R151 1-216-821-11 s METAL, CHIP 1K 5% 1/16W
 R153 1-216-833-11 s METAL, CHIP 10K 5% 1/16W

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Ref. No.
or Q'ty Part No. SP Description

R154 1-216-864-11 s METAL, CHIP 0-OHM
 R155 1-216-836-11 s METAL, CHIP 18K 5% 1/16W
 R156 1-216-845-11 s METAL, CHIP 100K 5% 1/16W
 R157 1-218-727-11 s METAL 30K 0.50% 1/16W
 R158 1-216-841-11 s METAL, CHIP 47K 5% 1/16W

R159 1-216-833-11 s METAL, CHIP 10K 5% 1/16W
 R160 1-218-727-11 s METAL 30K 0.50% 1/16W
 R161 1-216-833-11 s METAL, CHIP 10K 5% 1/16W
 R162 1-216-833-11 s METAL, CHIP 10K 5% 1/16W
 R163 1-218-727-11 s METAL 30K 0.50% 1/16W

R164 1-216-833-11 s METAL, CHIP 10K 5% 1/16W
 R165 1-216-845-11 s METAL, CHIP 100K 5% 1/16W
 R168 1-216-824-11 s METAL, CHIP 1.8K 5% 1/16W
 R169 1-216-824-11 s METAL, CHIP 1.8K 5% 1/16W
 R170 1-216-824-11 s METAL, CHIP 1.8K 5% 1/16W

R171 1-218-256-11 s METAL, CHIP 3.32K 0.5% 1/10W
 R172 1-216-827-11 s METAL, CHIP 3.3K 5% 1/16W
 R173 1-216-827-11 s METAL, CHIP 3.3K 5% 1/16W
 R174 1-216-821-11 s METAL, CHIP 1K 5% 1/16W
 R175 1-216-809-11 s METAL, CHIP 100 5% 1/16W

R176 1-216-837-11 s METAL, CHIP 22K 5% 1/16W
 R177 1-216-825-11 s METAL, CHIP 2.2K 5% 1/16W
 R178 1-216-826-11 s METAL, CHIP 2.7K 5% 1/16W
 R179 1-216-821-11 s METAL, CHIP 1K 5% 1/16W
 R180 1-216-829-11 s METAL, CHIP 4.7K 5% 1/16W

R181 1-218-271-11 s METAL 2K 0.50% 1/16W
 R182 1-216-825-11 s METAL, CHIP 2.2K 5% 1/16W
 R183 1-216-827-11 s METAL, CHIP 3.3K 5% 1/16W
 R184 1-216-831-11 s METAL, CHIP 6.8K 5% 1/16W
 R185 1-216-830-11 s METAL, CHIP 5.6K 5% 1/16W

R186 1-216-830-11 s METAL, CHIP 5.6K 5% 1/16W
 R187 1-216-830-11 s METAL, CHIP 5.6K 5% 1/16W
 R188 1-216-821-11 s METAL, CHIP 1K 5% 1/16W
 R189 1-216-821-11 s METAL, CHIP 1K 5% 1/16W
 R190 1-216-833-11 s METAL, CHIP 10K 5% 1/16W

R191 1-218-271-11 s METAL 2K 0.50% 1/16W
 R192 1-216-839-11 s METAL, CHIP 33K 5% 1/16W
 R193 1-216-821-11 s METAL, CHIP 1K 5% 1/16W
 R194 1-216-830-11 s METAL, CHIP 5.6K 5% 1/16W
 R195 1-216-845-11 s METAL, CHIP 100K 5% 1/16W

R196 1-218-252-11 s METAL, CHIP 2.26K 0.5% 1/10W
 R197 1-216-826-11 s METAL, CHIP 2.7K 5% 1/16W
 R198 1-216-833-11 s METAL, CHIP 10K 5% 1/16W
 R199 1-216-824-11 s METAL, CHIP 1.8K 5% 1/16W
 R200 1-216-829-11 s METAL, CHIP 4.7K 5% 1/16W

R201 1-216-825-11 s METAL, CHIP 2.2K 5% 1/16W
 R202 1-218-289-11 s METAL 510 5% 1/16W
 R203 1-216-834-11 s METAL, CHIP 12K 5% 1/16W
 R204 1-218-289-11 s METAL 510 5% 1/16W
 R205 1-216-831-11 s METAL, CHIP 6.8K 5% 1/16W

R206 1-216-826-11 s METAL, CHIP 2.7K 5% 1/16W
 R207 1-216-831-11 s METAL, CHIP 6.8K 5% 1/16W
 R209 1-216-826-11 s METAL, CHIP 2.7K 5% 1/16W
 R210 1-216-837-11 s METAL, CHIP 22K 5% 1/16W
 R211 1-216-837-11 s METAL, CHIP 22K 5% 1/16W

R213 1-216-829-11 s METAL, CHIP 4.7K 5% 1/16W
 R214 1-216-825-11 s METAL, CHIP 2.2K 5% 1/16W
 R215 1-216-826-11 s METAL, CHIP 2.7K 5% 1/16W
 R216 1-216-837-11 s METAL, CHIP 22K 5% 1/16W

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Ref. No.
or Q'ty Part No. SP Description

R217 1-216-836-11 s METAL, CHIP 18K 5% 1/16W
 R218 1-218-697-11 s METAL 1.6K 0.50% 1/16W
 R219 1-216-821-11 s METAL, CHIP 1K 5% 1/16W
 R220 1-216-835-11 s METAL, CHIP 15K 5% 1/16W
 R221 1-216-831-11 s METAL, CHIP 6.8K 5% 1/16W
 R222 1-216-830-11 s METAL, CHIP 5.6K 5% 1/16W
 R223 1-218-271-11 s METAL 2K 0.50% 1/16W
 R224 1-216-833-11 s METAL, CHIP 10K 5% 1/16W
 R225 1-218-271-11 s METAL 2K 0.50% 1/16W
 R226 1-218-724-11 s METAL 22K 0.50% 1/16W
 R227 1-216-829-11 s METAL, CHIP 4.7K 5% 1/16W
 R228 1-218-724-11 s METAL 22K 0.50% 1/16W
 R229 1-216-839-11 s METAL, CHIP 33K 5% 1/16W
 R230 1-218-724-11 s METAL 22K 0.50% 1/16W
 R231 1-216-838-11 s METAL, CHIP 27K 5% 1/16W
 R232 1-216-838-11 s METAL, CHIP 27K 5% 1/16W
 R233 1-216-821-11 s METAL, CHIP 1K 5% 1/16W
 R234 1-216-821-11 s METAL, CHIP 1K 5% 1/16W
 R235 1-218-724-11 s METAL 22K 0.50% 1/16W
 R236 1-218-724-11 s METAL 22K 0.50% 1/16W
 R237 1-218-724-11 s METAL 22K 0.50% 1/16W
 R238 1-218-704-11 s METAL 3.3K 0.50% 1/16W
 R239 1-216-864-11 s METAL, CHIP 0-OHM
 R241 1-218-289-11 s METAL 510 5% 1/16W
 R242 1-216-834-11 s METAL, CHIP 12K 5% 1/16W
 R243 1-216-825-11 s METAL, CHIP 2.2K 5% 1/16W
 R244 1-216-821-11 s METAL, CHIP 1K 5% 1/16W
 R245 1-216-829-11 s METAL, CHIP 4.7K 5% 1/16W
 R246 1-216-834-11 s METAL, CHIP 12K 5% 1/16W
 R247 1-216-823-11 s METAL, CHIP 1.5K 5% 1/16W
 R248 1-216-827-11 s METAL, CHIP 3.3K 5% 1/16W
 R249 1-216-833-11 s METAL, CHIP 10K 5% 1/16W
 R250 1-216-829-11 s METAL, CHIP 4.7K 5% 1/16W
 R251 1-218-704-11 s METAL 3.3K 0.50% 1/16W
 R252 1-216-833-11 s METAL, CHIP 10K 5% 1/16W
 R253 1-216-833-11 s METAL, CHIP 10K 5% 1/16W
 R254 1-216-826-11 s METAL, CHIP 2.7K 5% 1/16W
 R255 1-216-825-11 s METAL, CHIP 2.2K 5% 1/16W
 R256 1-216-831-11 s METAL, CHIP 6.8K 5% 1/16W
 R257 1-216-829-11 s METAL, CHIP 4.7K 5% 1/16W
 R258 1-216-821-11 s METAL, CHIP 1K 5% 1/16W
 R259 1-216-821-11 s METAL, CHIP 1K 5% 1/16W
 R260 1-216-821-11 s METAL, CHIP 1K 5% 1/16W
 R261 1-216-845-11 s METAL, CHIP 100K 5% 1/16W
 R262 1-216-845-11 s METAL, CHIP 100K 5% 1/16W
 R263 1-216-821-11 s METAL, CHIP 1K 5% 1/16W
 R264 1-216-826-11 s METAL, CHIP 2.7K 5% 1/16W
 R265 1-216-821-11 s METAL, CHIP 1K 5% 1/16W
 R266 1-216-821-11 s METAL, CHIP 1K 5% 1/16W
 R267 1-216-829-11 s METAL, CHIP 4.7K 5% 1/16W
 R268 1-216-829-11 s METAL, CHIP 4.7K 5% 1/16W
 R269 1-216-829-11 s METAL, CHIP 4.7K 5% 1/16W
 R270 1-216-832-11 s METAL, CHIP 8.2K 5% 1/16W
 R271 1-216-826-11 s METAL, CHIP 2.7K 5% 1/16W
 R272 1-216-818-11 s METAL, CHIP 560 5% 1/16W
 R274 1-216-835-11 s METAL, CHIP 15K 5% 1/16W
 R275 1-216-832-11 s METAL, CHIP 8.2K 5% 1/16W
 R276 1-216-825-11 s METAL, CHIP 2.2K 5% 1/16W
 R277 1-216-821-11 s METAL, CHIP 1K 5% 1/16W

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Ref. No.
or Q'ty Part No. SP Description

R278 1-216-821-11 s METAL, CHIP 1K 5% 1/16W
 R279 1-216-829-11 s METAL, CHIP 4.7K 5% 1/16W
 R280 1-216-865-11 s METAL 3K 0.50% 1/16W
 R281 1-216-865-11 s METAL 3K 0.50% 1/16W
 R282 1-216-827-11 s METAL, CHIP 3.3K 5% 1/16W
 R283 1-216-821-11 s METAL, CHIP 1K 5% 1/16W
 R284 1-216-821-11 s METAL, CHIP 1K 5% 1/16W
 R285 1-216-823-11 s METAL, CHIP 1.5K 5% 1/16W
 R286 1-216-829-11 s METAL, CHIP 4.7K 5% 1/16W
 R287 1-216-822-11 s METAL, CHIP 1.2K 5% 1/16W
 R288 1-216-822-11 s METAL, CHIP 1.2K 5% 1/16W
 R289 1-216-823-11 s METAL, CHIP 1.5K 5% 1/16W
 R290 1-216-829-11 s METAL, CHIP 4.7K 5% 1/16W
 R291 1-216-826-11 s METAL, CHIP 2.7K 5% 1/16W
 R292 1-216-827-11 s METAL, CHIP 3.3K 5% 1/16W
 R293 1-216-845-11 s METAL, CHIP 100K 5% 1/16W
 R294 1-216-828-11 s METAL, CHIP 3.9K 5% 1/16W
 R295 1-216-828-11 s METAL, CHIP 3.9K 5% 1/16W
 R296 1-216-828-11 s METAL, CHIP 3.9K 5% 1/16W
 RV1 1-238-087-11 s RES, ADJ CERMET 1K
 RV2 1-238-087-11 s RES, ADJ CERMET 1K
 RV3 1-238-087-11 s RES, ADJ CERMET 1K
 RV5 1-238-090-11 s RES, ADJ CERMET 10K
 RV6 1-238-089-11 s RES, ADJ CERMET 4.7K
 RV7 1-238-089-11 s RES, ADJ CERMET 4.7K
 RV8 1-238-088-11 s RES, ADJ, CERMET 2.2K
 RV9 1-238-089-11 s RES, ADJ CERMET 4.7K
 RV10 1-238-088-11 s RES, ADJ, CERMET 2.2K
 RV11 1-238-087-11 s RES, ADJ CERMET 1K
 RV12 1-238-087-11 s RES, ADJ CERMET 1K
 RV13 1-238-087-11 s RES, ADJ CERMET 1K
 RV14 1-238-087-11 s RES, ADJ CERMET 1K
 RV15 1-238-087-11 s RES, ADJ CERMET 1K
 R253 1-216-833-11 s METAL, CHIP 10K 5% 1/16W
 R254 1-216-826-11 s METAL, CHIP 2.7K 5% 1/16W
 R255 1-216-825-11 s METAL, CHIP 2.2K 5% 1/16W
 R256 1-216-831-11 s METAL, CHIP 6.8K 5% 1/16W
 R257 1-216-829-11 s METAL, CHIP 4.7K 5% 1/16W
 R258 1-216-821-11 s METAL, CHIP 1K 5% 1/16W
 R259 1-216-821-11 s METAL, CHIP 1K 5% 1/16W
 R260 1-216-821-11 s METAL, CHIP 1K 5% 1/16W
 R261 1-216-845-11 s METAL, CHIP 100K 5% 1/16W
 R262 1-216-845-11 s METAL, CHIP 100K 5% 1/16W
 R263 1-216-821-11 s METAL, CHIP 1K 5% 1/16W
 R264 1-216-826-11 s METAL, CHIP 2.7K 5% 1/16W
 R265 1-216-821-11 s METAL, CHIP 1K 5% 1/16W
 R266 1-216-821-11 s METAL, CHIP 1K 5% 1/16W
 R267 1-216-829-11 s METAL, CHIP 4.7K 5% 1/16W
 R268 1-216-829-11 s METAL, CHIP 4.7K 5% 1/16W
 R269 1-216-829-11 s METAL, CHIP 4.7K 5% 1/16W
 R270 1-216-832-11 s METAL, CHIP 8.2K 5% 1/16W
 R271 1-216-826-11 s METAL, CHIP 2.7K 5% 1/16W
 R272 1-216-818-11 s METAL, CHIP 560 5% 1/16W
 R274 1-216-835-11 s METAL, CHIP 15K 5% 1/16W
 R275 1-216-832-11 s METAL, CHIP 8.2K 5% 1/16W
 R276 1-216-825-11 s METAL, CHIP 2.2K 5% 1/16W
 R277 1-216-821-11 s METAL, CHIP 1K 5% 1/16W

PR-158P BOARD

Ref. No. or Q'ty	Part No.	SP Description
1pc	A-8271-147-A o	OUNTED CIRCUIT BOARD, PR-158P (DXC-930P,XC-009P)
C1	1-135-180-21 s	TANTALUM, CHIP 3.3uF 20% 6.3V
C2	1-162-910-11 s	CERAMIC 5PF 0.25PF 50V
C3	1-135-091-00 s	TANTALUN, CHIP 1uF 10% 16V
C4	1-135-091-00 s	TANTALUN, CHIP 1uF 10% 16V
C5	1-135-091-00 s	TANTALUN, CHIP 1uF 10% 16V
C6	1-126-391-11 s	ELECT, CHIP 47uF 20% 6.3V
C7	1-135-091-00 s	TANTALUN, CHIP 1uF 10% 16V
C8	1-135-091-00 s	TANTALUN, CHIP 1uF 10% 16V
C9	1-162-927-11 s	CERAMIC, CHIP 100PF 5% 50V
C10	1-135-091-00 s	TANTALUN, CHIP 1uF 10% 16V
C11	1-135-155-21 s	TANTAL CHIP 4.7uF 10% 16V
C12	1-164-156-11 s	CERAMIC 0.1uF 25V
C13	1-135-091-00 s	TANTALUN, CHIP 1uF 10% 16V
C14	1-135-167-21 s	TANTALUM, CHIP 68uF 20% 6.3V
C15	1-126-391-11 s	ELECT, CHIP 47uF 20% 6.3V
C16	1-135-162-21 s	TANTALUM, CHIP 33uF 10% 6.3V
C17	1-135-162-21 s	TANTALUM, CHIP 33uF 10% 6.3V
C18	1-135-091-00 s	TANTALUN, CHIP 1uF 10% 16V
C19	1-164-156-11 s	CERAMIC 0.1uF 25V
C20	1-164-156-11 s	CERAMIC 0.1uF 25V
C21	1-162-910-11 s	CERAMIC 5PF 0.25PF 50V
C22	1-135-091-00 s	TANTALUN, CHIP 1uF 10% 16V
C23	1-164-156-11 s	CERAMIC 0.1uF 25V
C24	1-135-091-00 s	TANTALUN, CHIP 1uF 10% 16V
C25	1-164-156-11 s	CERAMIC 0.1uF 25V
C26	1-135-091-00 s	TANTALUN, CHIP 1uF 10% 16V
C27	1-164-156-11 s	CERAMIC 0.1uF 25V
C28	1-164-156-11 s	CERAMIC 0.1uF 25V
C29	1-164-156-11 s	CERAMIC 0.1uF 25V
C30	1-164-156-11 s	CERAMIC 0.1uF 25V
C31	1-162-927-11 s	CERAMIC, CHIP 100PF 5% 50V
C32	1-135-155-21 s	TANTAL CHIP 4.7uF 10% 16V
C33	1-135-091-00 s	TANTALUN, CHIP 1uF 10% 16V
C34	1-135-162-21 s	TANTALUM, CHIP 33uF 10% 6.3V
C35	1-135-155-21 s	TANTAL CHIP 4.7uF 10% 16V
C36	1-135-091-00 s	TANTALUN, CHIP 1uF 10% 16V
C37	1-164-156-11 s	CERAMIC 0.1uF 25V
C38	1-135-091-00 s	TANTALUN, CHIP 1uF 10% 16V
C39	1-135-167-21 s	TANTALUM, CHIP 68uF 20% 6.3V
C40	1-135-091-00 s	TANTALUN, CHIP 1uF 10% 16V
C41	1-162-964-11 s	CERAMIC 0.001uF 10% 50V
C42	1-162-927-11 s	CERAMIC, CHIP 100PF 5% 50V
C43	1-135-091-00 s	TANTALUN, CHIP 1uF 10% 16V
C44	1-135-155-21 s	TANTAL CHIP 4.7uF 10% 16V
C45	1-135-177-21 s	TANTALUM, CHIP 1uF 10% 20V
C46	1-135-157-21 s	TANTALUM, CHIP 10uF 10% 6.3V
C47	1-135-167-21 s	TANTALUM, CHIP 68uF 20% 6.3V
C48	1-135-159-21 s	TANTALUM, CHIP 10uF 10% 20V
C49	1-135-159-21 s	TANTALUM, CHIP 10uF 10% 20V
C50	1-162-910-11 s	CERAMIC 5PF 0.25PF 50V
C51	1-135-091-00 s	TANTALUN, CHIP 1uF 10% 16V
C52	1-135-091-00 s	TANTALUN, CHIP 1uF 10% 16V
C53	1-135-091-00 s	TANTALUN, CHIP 1uF 10% 16V
C54	1-135-155-21 s	TANTAL CHIP 4.7uF 10% 16V
C55	1-135-162-21 s	TANTALUM, CHIP 33uF 10% 6.3V
C56	1-162-927-11 s	CERAMIC, CHIP 100PF 5% 50V

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Ref. No. or Q'ty	Part No.	SP Description
C57	1-164-156-11 s	CERAMIC 0.1uF 25V
C58	1-164-156-11 s	CERAMIC 0.1uF 25V
C59	1-164-156-11 s	CERAMIC 0.1uF 25V
C60	1-135-155-21 s	TANTAL CHIP 4.7uF 10% 16V
C61	1-135-091-00 s	TANTALUN, CHIP 1uF 10% 16V
C62	1-135-177-21 s	TANTALUM, CHIP 1uF 10% 20V
C63	1-135-177-21 s	TANTALUM, CHIP 1uF 10% 20V
C64	1-135-177-21 s	TANTALUM, CHIP 1uF 10% 20V
C65	1-164-156-11 s	CERAMIC 0.1uF 25V
C66	1-135-210-11 s	TANTALUM 4.7uF 20% 10V
C67	1-135-091-00 s	TANTALUN, CHIP 1uF 10% 16V
C68	1-135-155-21 s	TANTAL CHIP 4.7uF 10% 16V
C69	1-162-927-11 s	CERAMIC, CHIP 100PF 5% 50V
C70	1-162-949-11 s	CERAMIC 47PF 5% 50V
C71	1-162-915-11 s	CERAMIC, CHIP 10PF 5PF 50V
C72	1-135-157-21 s	TANTALUM, CHIP 10uF 10% 6.3V
C73	1-164-156-11 s	CERAMIC 0.1uF 25V
C74	1-135-157-21 s	TANTALUM, CHIP 10uF 10% 6.3V
C75	1-135-091-00 s	TANTALUN, CHIP 1uF 10% 16V
C76	1-164-156-11 s	CERAMIC 0.1uF 25V
C77	1-135-167-21 s	TANTALUM, CHIP 68uF 20% 6.3V
C78	1-135-177-21 s	TANTALUM, CHIP 1uF 10% 20V
C79	1-135-180-21 s	TANTALUM, CHIP 3.3uF 20% 6.3V
C80	1-135-180-21 s	TANTALUM, CHIP 3.3uF 20% 6.3V
C81	1-135-210-11 s	TANTALUM 4.7uF 20% 10V
C82	1-135-210-11 s	TANTALUM 4.7uF 20% 10V
C83	1-135-159-21 s	TANTALUM, CHIP 10uF 10% 20V
C84	1-162-927-11 s	CERAMIC, CHIP 100PF 5% 50V
C85	1-162-921-11 s	CERAMIC, CHIP 33PF 5% 50V
C86	1-162-921-11 s	CERAMIC, CHIP 33PF 5% 50V
C87	1-135-159-21 s	TANTALUM, CHIP 10uF 10% 20V
C88	1-164-156-11 s	CERAMIC 0.1uF 25V
C89	1-135-161-21 s	TANTALUM, CHIP 22uF 10% 10V
C90	1-135-180-21 s	TANTALUM, CHIP 3.3uF 20% 6.3V
C91	1-164-155-11 s	CERAMIC 75PF 5% 50V
C92	1-162-970-11 s	CERAMIC, CHIP 0.01uF 10% 25V
C93	1-164-155-11 s	CERAMIC 75PF 5% 50V
C94	1-135-208-11 s	TANTALUM 1uF 20% 10V
C95	1-162-970-11 s	CERAMIC, CHIP 0.01uF 10% 25V
C96	1-135-216-11 s	TANTALUM 10uF 20% 10V
C97	1-135-180-21 s	TANTALUM, CHIP 3.3uF 20% 6.3V
C98	1-135-157-21 s	TANTALUM, CHIP 10uF 10% 6.3V
C99	1-135-210-11 s	TANTALUM 4.7uF 20% 10V
C100	1-164-156-11 s	CERAMIC 0.1uF 25V
C101	1-164-156-11 s	CERAMIC 0.1uF 25V
C102	1-162-920-11 s	CERAMIC, CHIP 27PF 5% 50V
C103	1-162-927-11 s	CERAMIC, CHIP 100PF 5% 50V
C104	1-164-156-11 s	CERAMIC 0.1uF 25V
C105	1-135-161-21 s	TANTALUM, CHIP 22uF 10% 10V
C106	1-135-152-21 s	TANTALUM, CHIP 1.5uF 10% 25V
C107	1-135-157-21 s	TANTALUM, CHIP 10uF 10% 6.3V
C108	1-162-921-11 s	CERAMIC, CHIP 33PF 5% 50V
C109	1-162-921-11 s	CERAMIC, CHIP 33PF 5% 50V
C110	1-162-925-11 s	CERAMIC, CHIP 68PF 5% 50V
C111	1-135-161-21 s	TANTALUM, CHIP 22uF 10% 10V
C112	1-135-157-21 s	TANTALUM, CHIP 10uF 10% 6.3V
C113	1-135-157-21 s	TANTALUM, CHIP 10uF 10% 6.3V
C114	1-162-920-11 s	CERAMIC, CHIP 27PF 5% 50V
C115	1-162-962-11 s	CERAMIC 470PF 10% 50V

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Ref. No. or Q'ty	Part No.	SP Description
C116	1-162-927-11	s CERAMIC, CHIP 100PF 5% 50V
C117	1-126-391-11	s ELECT, CHIP 47uF 20% 6.3V
C118	1-135-159-21	s TANTALUM, CHIP 10uF 10% 20V
C119	1-164-156-11	s CERAMIC 0.1uF 25V
C120	1-162-918-11	s CERAMIC, CHIP 18PF 5% 50V
C121	1-135-159-21	s TANTALUM, CHIP 10uF 10% 20V
C122	1-135-157-21	s TANTALUM, CHIP 10uF 10% 6.3V
C123	1-135-157-21	s TANTALUM, CHIP 10uF 10% 6.3V
C124	1-135-180-21	s TANTALUM, CHIP 3.3uF 20% 6.3V
C125	1-135-155-21	s TANTAL CHIP 4.7uF 10% 16V
C126	1-135-180-21	s TANTALUM, CHIP 3.3uF 20% 6.3V
C127	1-162-964-11	s CERAMIC 0.001uF 10% 50V
C128	1-162-927-11	s CERAMIC, CHIP 100PF 5% 50V
CN1	1-569-607-11	s CONNECTOR, BOARD TO BOARD 24P
CN2	1-569-607-11	s CONNECTOR, BOARD TO BOARD 24P
D1	8-719-123-85	s DIODE 1SS304
D2	8-719-123-85	s DIODE 1SS304
DL1	1-415-730-21	s DELAY LINE, LC 100nS
DL2	1-415-730-21	s DELAY LINE, LC 100nS
DL3	1-415-730-21	s DELAY LINE, LC 100nS
DL4	1-415-864-21	s DELAY LINE, LC
DL5	1-415-763-21	s DELAY LINE, LC
DL6	1-415-730-21	s DELAY LINE, LC 100nS
DL7	1-415-730-21	s DELAY LINE, LC 100nS
DL8	1-415-730-21	s DELAY LINE, LC 100nS
FL1	1-409-496-21	s FILTER, LC TRAP
FL2	1-409-496-21	s FILTER, LC TRAP
FL3	1-409-496-21	s FILTER, LC TRAP
FL4	1-239-211-21	s FILTER, BANDPASS
IC1	8-759-030-16	s IC MC34182M
IC2	8-759-300-71	s IC HD14053BFP
IC3	8-759-234-77	s IC TC4S66F
IC4	8-759-234-77	s IC TC4S66F
IC5	8-759-209-57	s IC TC4S69F
IC6	8-759-030-16	s IC MC34182M
IC7	8-759-234-77	s IC TC4S66F
IC8	8-759-052-67	s IC UPC2372GF-3B9
IC9	8-759-030-16	s IC MC34182M
IC10	8-759-927-46	s IC SN74HC00NS
IC11	8-759-926-37	s IC SN74HC193ANS
IC12	8-759-925-83	s IC SN74HC27NS
IC13	8-759-635-27	s IC M62352GP-E1
IC14	8-759-906-59	s IC CX22017
IC15	8-759-209-57	s IC TC4S69F
IC16	8-759-635-27	s IC M62352GP-E1
IC17	8-752-056-59	s IC CXA1592R
IC18	8-759-635-27	s IC M62352GP-E1
L1	1-412-030-11	s INDUCTOR CHIP 22uH
L2	1-412-030-11	s INDUCTOR CHIP 22uH
L3	1-412-030-11	s INDUCTOR CHIP 22uH
L4	1-412-030-11	s INDUCTOR CHIP 22uH
L5	1-412-032-11	s INDUCTOR CHIP 100uH
L6	1-412-032-11	s INDUCTOR CHIP 100uH
L7	1-412-032-11	s INDUCTOR CHIP 100uH
L8	1-412-030-11	s INDUCTOR CHIP 22uH
L12	1-412-034-11	s INDUCTOR CHIP 330uH
L13	1-412-034-11	s INDUCTOR CHIP 330uH

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Ref. No. or Q'ty	Part No.	SP Description
L14	1-412-032-11	s INDUCTOR CHIP 100uH
LV1	1-414-071-21	s COIL, VAR
Q1	8-729-117-16	s TRANSISTOR 2SA1611-M6
Q2	8-729-427-83	s TRANSISTOR XP6501
Q3	8-729-117-32	s TRANSISTOR 2SC4177
Q4	8-729-117-32	s TRANSISTOR 2SC4177
Q5	8-729-117-32	s TRANSISTOR 2SC4177
Q6	8-729-926-19	s TRANSISTOR 2SC4103-Q
Q7	8-729-926-19	s TRANSISTOR 2SC4103-Q
Q8	8-729-118-58	s TRANSISTOR 2SK852-X4
Q9	8-729-117-32	s TRANSISTOR 2SC4177
Q10	8-729-117-16	s TRANSISTOR 2SA1611-M6
Q11	8-729-117-32	s TRANSISTOR 2SC4177
Q12	8-729-117-32	s TRANSISTOR 2SC4177
Q13	8-729-926-19	s TRANSISTOR 2SC4103-Q
Q14	8-729-117-32	s TRANSISTOR 2SC4177
Q15	8-729-117-32	s TRANSISTOR 2SC4177
Q16	8-729-117-32	s TRANSISTOR 2SC4177
Q17	8-729-117-16	s TRANSISTOR 2SA1611-M6
Q18	8-729-427-83	s TRANSISTOR XP6501
Q19	8-729-117-32	s TRANSISTOR 2SC4177
Q20	8-729-117-32	s TRANSISTOR 2SC4177
Q21	8-729-117-32	s TRANSISTOR 2SC4177
Q22	8-729-117-16	s TRANSISTOR 2SA1611-M6
Q23	8-729-926-19	s TRANSISTOR 2SC4103-Q
Q24	8-729-926-19	s TRANSISTOR 2SC4103-Q
Q25	8-729-117-32	s TRANSISTOR 2SC4177
Q26	8-729-427-83	s TRANSISTOR XP6501
Q27	8-729-117-32	s TRANSISTOR 2SC4177
Q28	8-729-117-32	s TRANSISTOR 2SC4177
Q29	8-729-117-32	s TRANSISTOR 2SC4177
Q30	8-729-926-19	s TRANSISTOR 2SC4103-Q
Q31	8-729-117-32	s TRANSISTOR 2SC4177
Q32	8-729-117-32	s TRANSISTOR 2SC4177
Q33	8-729-117-16	s TRANSISTOR 2SA1611-M6
Q34	8-729-117-16	s TRANSISTOR 2SA1611-M6
Q35	8-729-427-83	s TRANSISTOR XP6501
Q36	8-729-926-19	s TRANSISTOR 2SC4103-Q
Q37	8-729-926-19	s TRANSISTOR 2SC4103-Q
Q38	8-729-118-58	s TRANSISTOR 2SK852-X4
Q39	8-729-117-16	s TRANSISTOR 2SA1611-M6
Q40	8-729-117-32	s TRANSISTOR 2SC4177
Q41	8-729-117-32	s TRANSISTOR 2SC4177
Q42	8-729-427-74	s TRANSISTOR XP4601
Q43	8-729-117-32	s TRANSISTOR 2SC4177
Q44	8-729-427-83	s TRANSISTOR XP6501
Q45	8-729-117-32	s TRANSISTOR 2SC4177
Q46	8-729-926-19	s TRANSISTOR 2SC4103-Q
Q47	8-729-117-32	s TRANSISTOR 2SC4177
Q48	8-729-117-32	s TRANSISTOR 2SC4177
Q49	8-729-427-83	s TRANSISTOR XP6501
Q50	8-729-429-98	s TRANSISTOR XP1401
Q51	8-729-117-32	s TRANSISTOR 2SC4177
Q52	8-729-117-32	s TRANSISTOR 2SC4177
Q53	8-729-926-19	s TRANSISTOR 2SC4103-Q
Q54	8-729-117-32	s TRANSISTOR 2SC4177
Q55	8-729-117-32	s TRANSISTOR 2SC4177

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Ref. No. or Q'ty	Part No.	SP Description
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Q56	8-729-427-83	s TRANSISTOR XP6501
Q57	8-729-117-16	s TRANSISTOR 2SA1611-M6
Q58	8-729-117-16	s TRANSISTOR 2SA1611-M6
Q59	8-729-117-16	s TRANSISTOR 2SA1611-M6
Q60	8-729-117-16	s TRANSISTOR 2SA1611-M6

Q61	8-729-117-32	s TRANSISTOR 2SC4177
Q62	8-729-117-16	s TRANSISTOR 2SA1611-M6
Q63	8-729-117-32	s TRANSISTOR 2SC4177
Q64	8-729-427-83	s TRANSISTOR XP6501
Q65	8-729-926-19	s TRANSISTOR 2SC4103-Q

Q66	8-729-117-16	s TRANSISTOR 2SA1611-M6
Q67	8-729-117-32	s TRANSISTOR 2SC4177
Q68	8-729-117-16	s TRANSISTOR 2SA1611-M6
Q69	8-729-117-32	s TRANSISTOR 2SC4177
Q70	8-729-926-19	s TRANSISTOR 2SC4103-Q

Q71	8-729-117-16	s TRANSISTOR 2SA1611-M6
Q72	8-729-117-16	s TRANSISTOR 2SA1611-M6
Q73	8-729-117-16	s TRANSISTOR 2SA1611-M6
Q74	8-729-117-32	s TRANSISTOR 2SC4177
Q75	8-729-117-32	s TRANSISTOR 2SC4177

Q76	8-729-117-32	s TRANSISTOR 2SC4177
Q77	8-729-926-19	s TRANSISTOR 2SC4103-Q
Q78	8-729-117-32	s TRANSISTOR 2SC4177
Q79	8-729-117-32	s TRANSISTOR 2SC4177
Q80	8-729-926-19	s TRANSISTOR 2SC4103-Q

Q81	8-729-117-16	s TRANSISTOR 2SA1611-M6
Q82	8-729-117-32	s TRANSISTOR 2SC4177
Q83	8-729-117-32	s TRANSISTOR 2SC4177
Q84	8-729-117-16	s TRANSISTOR 2SA1611-M6
Q85	8-729-117-32	s TRANSISTOR 2SC4177

Q87	8-729-117-32	s TRANSISTOR 2SC4177
Q89	8-729-117-32	s TRANSISTOR 2SC4177
Q90	8-729-117-32	s TRANSISTOR 2SC4177

R1	1-216-821-11	s METAL, CHIP 1K 5% 1/16W
R2	1-216-828-11	s METAL, CHIP 3.9K 5% 1/16W
R3	1-216-828-11	s METAL, CHIP 3.9K 5% 1/16W
R4	1-218-330-11	s METAL 11K 0.50% 1/16W
R5	1-216-832-11	s METAL, CHIP 8.2K 5% 1/16W

R6	1-216-833-11	s METAL, CHIP 10K 5% 1/16W
R7	1-216-817-11	s METAL, CHIP 470 5% 1/16W
R8	1-220-373-11	s METAL 620 0.50% 1/16W
R9	1-216-825-11	s METAL, CHIP 2.2K 5% 1/16W
R10	1-218-457-11	s METAL 910 0.50% 1/16W

R11	1-218-700-11	s METAL 2.2K 0.50% 1/16W
R12	1-216-836-11	s METAL, CHIP 18K 5% 1/16W
R13	1-216-821-11	s METAL, CHIP 1K 5% 1/16W
R14	1-216-821-11	s METAL, CHIP 1K 5% 1/16W
R15	1-216-840-11	s METAL, CHIP 39K 5% 1/16W

R16	1-216-845-11	s METAL, CHIP 100K 5% 1/16W
R17	1-216-824-11	s METAL, CHIP 1.8K 5% 1/16W
R18	1-216-827-11	s METAL, CHIP 3.3K 5% 1/16W
R19	1-216-850-11	s METAL 270K 5% 1/16W
R20	1-216-833-11	s METAL, CHIP 10K 5% 1/16W

R21	1-216-826-11	s METAL, CHIP 2.7K 5% 1/16W
R22	1-216-821-11	s METAL, CHIP 1K 5% 1/16W
R23	1-216-828-11	s METAL, CHIP 3.9K 5% 1/16W
R24	1-216-837-11	s METAL, CHIP 22K 5% 1/16W
R25	1-216-821-11	s METAL, CHIP 1K 5% 1/16W

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Ref. No. or Q'ty	Part No.	SP Description
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R26	1-216-821-11	s METAL, CHIP 1K 5% 1/16W
R27	1-218-484-11	s METAL 750 0.50% 1/16W
R28	1-216-821-11	s METAL, CHIP 1K 5% 1/16W
R29	1-216-833-11	s METAL, CHIP 10K 5% 1/16W
R30	1-218-705-11	s METAL 3.6K 0.50% 1/16W

R31	1-216-829-11	s METAL, CHIP 4.7K 5% 1/16W
R32	1-216-825-11	s METAL, CHIP 2.2K 5% 1/16W
R33	1-216-829-11	s METAL, CHIP 4.7K 5% 1/16W
R34	1-216-827-11	s METAL, CHIP 3.3K 5% 1/16W
R35	1-216-821-11	s METAL, CHIP 1K 5% 1/16W

R36	1-216-829-11	s METAL, CHIP 4.7K 5% 1/16W
R37	1-216-828-11	s METAL, CHIP 3.9K 5% 1/16W
R38	1-216-831-11	s METAL, CHIP 6.8K 5% 1/16W
R39	1-216-828-11	s METAL, CHIP 3.9K 5% 1/16W
R40	1-216-828-11	s METAL, CHIP 3.9K 5% 1/16W

R41	1-216-831-11	s METAL, CHIP 6.8K 5% 1/16W
R42	1-216-831-11	s METAL, CHIP 6.8K 5% 1/16W
R43	1-216-833-11	s METAL, CHIP 10K 5% 1/16W
R44	1-216-831-11	s METAL, CHIP 6.8K 5% 1/16W
R45	1-216-823-11	s METAL, CHIP 1.5K 5% 1/16W

R46	1-216-832-11	s METAL, CHIP 8.2K 5% 1/16W
R47	1-216-823-11	s METAL, CHIP 1.5K 5% 1/16W
R48	1-218-700-11	s METAL 2.2K 0.50% 1/16W
R49	1-216-836-11	s METAL, CHIP 18K 5% 1/16W
R50	1-216-841-11	s METAL, CHIP 47K 5% 1/16W

R51	1-216-825-11	s METAL, CHIP 2.2K 5% 1/16W
R52	1-216-821-11	s METAL, CHIP 1K 5% 1/16W
R53	1-216-833-11	s METAL, CHIP 10K 5% 1/16W
R54	1-216-840-11	s METAL, CHIP 39K 5% 1/16W
R55	1-216-845-11	s METAL, CHIP 100K 5% 1/16W

R56	1-216-824-11	s METAL, CHIP 1.8K 5% 1/16W
R57	1-216-827-11	s METAL, CHIP 3.3K 5% 1/16W
R58	1-216-826-11	s METAL, CHIP 2.7K 5% 1/16W
R59	1-216-821-11	s METAL, CHIP 1K 5% 1/16W
R60	1-216-828-11	s METAL, CHIP 3.9K 5% 1/16W

R62	1-216-825-11	s METAL, CHIP 2.2K 5% 1/16W
R63	1-216-821-11	s METAL, CHIP 1K 5% 1/16W
R64	1-216-821-11	s METAL, CHIP 1K 5% 1/16W
R65	1-216-827-11	s METAL, CHIP 3.3K 5% 1/16W
R66	1-216-828-11	s METAL, CHIP 3.9K 5% 1/16W

R67	1-216-828-11	s METAL, CHIP 3.9K 5% 1/16W
R68	1-218-484-11	s METAL 750 0.50% 1/16W
R69	1-216-821-11	s METAL, CHIP 1K 5% 1/16W
R70	1-216-833-11	s METAL, CHIP 10K 5% 1/16W
R71	1-216-821-11	s METAL, CHIP 1K 5% 1/16W

R72	1-218-705-11	s METAL 3.6K 0.50% 1/16W
R73	1-216-829-11	s METAL, CHIP 4.7K 5% 1/16W
R74	1-216-825-11	s METAL, CHIP 2.2K 5% 1/16W
R75	1-216-829-11	s METAL, CHIP 4.7K 5% 1/16W
R76	1-216-827-11	s METAL, CHIP 3.3K 5% 1/16W

R77	1-216-821-11	s METAL, CHIP 1K 5% 1/16W
R78	1-216-829-11	s METAL, CHIP 4.7K 5% 1/16W
R79	1-216-831-11	s METAL, CHIP 6.8K 5% 1/16W
R80	1-216-833-11	s METAL, CHIP 10K 5% 1/16W
R81	1-216-821-11	s METAL, CHIP 1K 5% 1/16W

R82	1-216-821-11	s METAL, CHIP 1K 5% 1/16W
R83	1-216-837-11	s METAL, CHIP 22K 5% 1/16W
R84	1-216-832-11	s METAL, CHIP 8.2K 5% 1/16W
R85	1-216-817-11	s METAL, CHIP 470 5% 1/16W

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Ref. No.
or Q'ty Part No. SP Description

R86 1-216-821-11 s METAL, CHIP 1K 5% 1/16W
 R87 1-216-821-11 s METAL, CHIP 1K 5% 1/16W
 R88 1-218-700-11 s METAL 2.2K 0.50% 1/16W
 R89 1-216-836-11 s METAL, CHIP 18K 5% 1/16W
 R90 1-216-821-11 s METAL, CHIP 1K 5% 1/16W

R91 1-216-840-11 s METAL, CHIP 39K 5% 1/16W
 R92 1-216-845-11 s METAL, CHIP 100K 5% 1/16W
 R93 1-216-824-11 s METAL, CHIP 1.8K 5% 1/16W
 R94 1-216-827-11 s METAL, CHIP 3.3K 5% 1/16W
 R95 1-216-850-11 s METAL 270K 5% 1/16W

R96 1-216-833-11 s METAL, CHIP 10K 5% 1/16W
 R97 1-216-826-11 s METAL, CHIP 2.7K 5% 1/16W
 R98 1-216-821-11 s METAL, CHIP 1K 5% 1/16W
 R99 1-216-828-11 s METAL, CHIP 3.9K 5% 1/16W
 R100 1-216-833-11 s METAL, CHIP 10K 5% 1/16W

R101 1-216-833-11 s METAL, CHIP 10K 5% 1/16W
 R102 1-216-832-11 s METAL, CHIP 8.2K 5% 1/16W
 R103 1-216-825-11 s METAL, CHIP 2.2K 5% 1/16W
 R104 1-216-821-11 s METAL, CHIP 1K 5% 1/16W
 R105 1-216-845-11 s METAL, CHIP 100K 5% 1/16W

R106 1-216-825-11 s METAL, CHIP 2.2K 5% 1/16W
 R107 1-216-833-11 s METAL, CHIP 10K 5% 1/16W
 R108 1-216-845-11 s METAL, CHIP 100K 5% 1/16W
 R109 1-216-825-11 s METAL, CHIP 2.2K 5% 1/16W
 R110 1-216-825-11 s METAL, CHIP 2.2K 5% 1/16W

R111 1-216-825-11 s METAL, CHIP 2.2K 5% 1/16W
 R112 1-216-841-11 s METAL, CHIP 47K 5% 1/16W
 R113 1-216-833-11 s METAL, CHIP 10K 5% 1/16W
 R114 1-216-821-11 s METAL, CHIP 1K 5% 1/16W
 R115 1-216-821-11 s METAL, CHIP 1K 5% 1/16W

R116 1-216-833-11 s METAL, CHIP 10K 5% 1/16W
 R117 1-216-841-11 s METAL, CHIP 47K 5% 1/16W
 R118 1-216-821-11 s METAL, CHIP 1K 5% 1/16W
 R119 1-216-830-11 s METAL, CHIP 5.6K 5% 1/16W
 R120 1-216-833-11 s METAL, CHIP 10K 5% 1/16W

R121 1-216-833-11 s METAL, CHIP 10K 5% 1/16W
 R122 1-216-833-11 s METAL, CHIP 10K 5% 1/16W
 R123 1-218-484-11 s METAL 750 0.50% 1/16W
 R124 1-216-821-11 s METAL, CHIP 1K 5% 1/16W
 R125 1-216-825-11 s METAL, CHIP 2.2K 5% 1/16W

R126 1-218-705-11 s METAL 3.6K 0.50% 1/16W
 R127 1-216-829-11 s METAL, CHIP 4.7K 5% 1/16W
 R128 1-216-825-11 s METAL, CHIP 2.2K 5% 1/16W
 R129 1-216-829-11 s METAL, CHIP 4.7K 5% 1/16W
 R130 1-216-827-11 s METAL, CHIP 3.3K 5% 1/16W

R131 1-216-821-11 s METAL, CHIP 1K 5% 1/16W
 R132 1-216-829-11 s METAL, CHIP 4.7K 5% 1/16W
 R133 1-216-831-11 s METAL, CHIP 6.8K 5% 1/16W
 R134 1-216-825-11 s METAL, CHIP 2.2K 5% 1/16W
 R135 1-216-833-11 s METAL, CHIP 10K 5% 1/16W

R136 1-218-700-11 s METAL 2.2K 0.50% 1/16W
 R137 1-218-259-11 s METAL, CHIP 13.7K 0.5% 1/10W
 R138 1-218-254-11 s METAL, CHIP 2.55K 0.5% 1/10W
 R140 1-218-295-11 s METAL 5.6K 0.50% 1/16W
 R141 1-216-865-11 s METAL 3K 0.50% 1/16W

R142 1-218-721-11 s METAL 16K 0.50% 1/16W
 R152 1-218-254-11 s METAL, CHIP 2.55K 0.5% 1/10W
 R153 1-216-834-11 s METAL, CHIP 12K 5% 1/16W
 R154 1-216-814-11 s METAL, CHIP 270 5% 1/16W

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Ref. No.
or Q'ty Part No. SP Description

R155 1-216-836-11 s METAL, CHIP 18K 5% 1/16W
 R156 1-216-845-11 s METAL, CHIP 100K 5% 1/16W
 R157 1-218-729-11 s METAL 36K 0.50% 1/16W
 R158 1-216-841-11 s METAL, CHIP 47K 5% 1/16W
 R159 1-216-834-11 s METAL, CHIP 12K 5% 1/16W

R160 1-218-729-11 s METAL 36K 0.50% 1/16W
 R161 1-216-834-11 s METAL, CHIP 12K 5% 1/16W
 R162 1-216-833-11 s METAL, CHIP 10K 5% 1/16W
 R163 1-218-729-11 s METAL 36K 0.50% 1/16W
 R164 1-216-833-11 s METAL, CHIP 10K 5% 1/16W

R165 1-216-845-11 s METAL, CHIP 100K 5% 1/16W
 R166 1-216-833-11 s METAL, CHIP 10K 5% 1/16W
 R167 1-218-257-11 s METAL, CHIP 4.99K 0.5% 1/10W
 R168 1-216-824-11 s METAL, CHIP 1.8K 5% 1/16W
 R169 1-216-824-11 s METAL, CHIP 1.8K 5% 1/16W

R170 1-216-824-11 s METAL, CHIP 1.8K 5% 1/16W
 R172 1-216-827-11 s METAL, CHIP 3.3K 5% 1/16W
 R173 1-216-827-11 s METAL, CHIP 3.3K 5% 1/16W
 R174 1-216-821-11 s METAL, CHIP 1K 5% 1/16W
 R175 1-216-809-11 s METAL, CHIP 100 5% 1/16W

R176 1-216-837-11 s METAL, CHIP 22K 5% 1/16W
 R177 1-216-825-11 s METAL, CHIP 2.2K 5% 1/16W
 R178 1-216-826-11 s METAL, CHIP 2.7K 5% 1/16W
 R179 1-216-821-11 s METAL, CHIP 1K 5% 1/16W
 R180 1-216-829-11 s METAL, CHIP 4.7K 5% 1/16W

R181 1-218-271-11 s METAL 2K 0.50% 1/16W
 R182 1-216-825-11 s METAL, CHIP 2.2K 5% 1/16W
 R183 1-216-827-11 s METAL, CHIP 3.3K 5% 1/16W
 R184 1-216-831-11 s METAL, CHIP 6.8K 5% 1/16W
 R185 1-216-830-11 s METAL, CHIP 5.6K 5% 1/16W

R186 1-216-830-11 s METAL, CHIP 5.6K 5% 1/16W
 R187 1-216-830-11 s METAL, CHIP 5.6K 5% 1/16W
 R188 1-216-821-11 s METAL, CHIP 1K 5% 1/16W
 R189 1-216-821-11 s METAL, CHIP 1K 5% 1/16W
 R190 1-216-833-11 s METAL, CHIP 10K 5% 1/16W

R191 1-218-271-11 s METAL 2K 0.50% 1/16W
 R192 1-216-839-11 s METAL, CHIP 33K 5% 1/16W
 R193 1-216-821-11 s METAL, CHIP 1K 5% 1/16W
 R194 1-216-830-11 s METAL, CHIP 5.6K 5% 1/16W
 R197 1-216-826-11 s METAL, CHIP 2.7K 5% 1/16W

R198 1-216-831-11 s METAL, CHIP 6.8K 5% 1/16W
 R199 1-216-824-11 s METAL, CHIP 1.8K 5% 1/16W
 R200 1-216-829-11 s METAL, CHIP 4.7K 5% 1/16W
 R201 1-216-825-11 s METAL, CHIP 2.2K 5% 1/16W
 R202 1-218-289-11 s METAL 510 5% 1/16W

R203 1-216-834-11 s METAL, CHIP 12K 5% 1/16W
 R204 1-218-289-11 s METAL 510 5% 1/16W
 R205 1-216-831-11 s METAL, CHIP 6.8K 5% 1/16W
 R206 1-216-826-11 s METAL, CHIP 2.7K 5% 1/16W
 R207 1-216-831-11 s METAL, CHIP 6.8K 5% 1/16W

R208 1-216-837-11 s METAL, CHIP 22K 5% 1/16W
 R209 1-216-826-11 s METAL, CHIP 2.7K 5% 1/16W
 R210 1-216-837-11 s METAL, CHIP 22K 5% 1/16W
 R211 1-216-837-11 s METAL, CHIP 22K 5% 1/16W
 R213 1-216-829-11 s METAL, CHIP 4.7K 5% 1/16W

R214 1-216-825-11 s METAL, CHIP 2.2K 5% 1/16W
 R215 1-216-826-11 s METAL, CHIP 2.7K 5% 1/16W
 R216 1-216-837-11 s METAL, CHIP 22K 5% 1/16W
 R217 1-216-836-11 s METAL, CHIP 18K 5% 1/16W

(PR-158P BOARD)

Ref. No. or Q'ty	Part No.	SP Description
R218	1-218-697-11	s METAL 1.6K 0.50% 1/16W
R219	1-216-821-11	s METAL, CHIP 1K 5% 1/16W
R220	1-216-835-11	s METAL, CHIP 15K 5% 1/16W
R221	1-216-831-11	s METAL, CHIP 6.8K 5% 1/16W
R222	1-216-830-11	s METAL, CHIP 5.6K 5% 1/16W
R223	1-218-271-11	s METAL 2K 0.50% 1/16W
R224	1-216-833-11	s METAL, CHIP 10K 5% 1/16W
R225	1-218-271-11	s METAL 2K 0.50% 1/16W
R226	1-218-724-11	s METAL 22K 0.50% 1/16W
R227	1-216-831-11	s METAL, CHIP 6.8K 5% 1/16W
R228	1-218-724-11	s METAL 22K 0.50% 1/16W
R229	1-216-839-11	s METAL, CHIP 33K 5% 1/16W
R230	1-218-724-11	s METAL 22K 0.50% 1/16W
R231	1-216-838-11	s METAL, CHIP 27K 5% 1/16W
R232	1-216-838-11	s METAL, CHIP 27K 5% 1/16W
R233	1-216-821-11	s METAL, CHIP 1K 5% 1/16W
R234	1-216-821-11	s METAL, CHIP 1K 5% 1/16W
R235	1-218-724-11	s METAL 22K 0.50% 1/16W
R236	1-218-724-11	s METAL 22K 0.50% 1/16W
R237	1-218-724-11	s METAL 22K 0.50% 1/16W
R238	1-218-704-11	s METAL 3.3K 0.50% 1/16W
R240	1-216-864-11	s METAL, CHIP 0-OHM
R241	1-218-289-11	s METAL 510 5% 1/16W
R242	1-216-834-11	s METAL, CHIP 12K 5% 1/16W
R243	1-216-825-11	s METAL, CHIP 2.2K 5% 1/16W
R244	1-216-821-11	s METAL, CHIP 1K 5% 1/16W
R245	1-216-829-11	s METAL, CHIP 4.7K 5% 1/16W
R246	1-216-834-11	s METAL, CHIP 12K 5% 1/16W
R247	1-216-823-11	s METAL, CHIP 1.5K 5% 1/16W
R248	1-216-827-11	s METAL, CHIP 3.3K 5% 1/16W
R249	1-216-833-11	s METAL, CHIP 10K 5% 1/16W
R250	1-216-829-11	s METAL, CHIP 4.7K 5% 1/16W
R251	1-218-704-11	s METAL 3.3K 0.50% 1/16W
R252	1-216-833-11	s METAL, CHIP 10K 5% 1/16W
R253	1-216-833-11	s METAL, CHIP 10K 5% 1/16W
R254	1-216-826-11	s METAL, CHIP 2.7K 5% 1/16W
R255	1-216-825-11	s METAL, CHIP 2.2K 5% 1/16W
R256	1-216-831-11	s METAL, CHIP 6.8K 5% 1/16W
R257	1-216-829-11	s METAL, CHIP 4.7K 5% 1/16W
R258	1-216-821-11	s METAL, CHIP 1K 5% 1/16W
R259	1-216-821-11	s METAL, CHIP 1K 5% 1/16W
R260	1-216-821-11	s METAL, CHIP 1K 5% 1/16W
R261	1-216-845-11	s METAL, CHIP 100K 5% 1/16W
R262	1-216-845-11	s METAL, CHIP 100K 5% 1/16W
R263	1-216-821-11	s METAL, CHIP 1K 5% 1/16W
R264	1-216-826-11	s METAL, CHIP 2.7K 5% 1/16W
R265	1-216-821-11	s METAL, CHIP 1K 5% 1/16W
R266	1-216-821-11	s METAL, CHIP 1K 5% 1/16W
R267	1-216-829-11	s METAL, CHIP 4.7K 5% 1/16W
R268	1-216-829-11	s METAL, CHIP 4.7K 5% 1/16W
R269	1-216-829-11	s METAL, CHIP 4.7K 5% 1/16W
R270	1-216-832-11	s METAL, CHIP 8.2K 5% 1/16W
R271	1-216-826-11	s METAL, CHIP 2.7K 5% 1/16W
R272	1-216-818-11	s METAL, CHIP 560 5% 1/16W
R273	1-218-700-11	s METAL 2.2K 0.50% 1/16W
R274	1-216-835-11	s METAL, CHIP 15K 5% 1/16W
R275	1-216-832-11	s METAL, CHIP 8.2K 5% 1/16W
R276	1-216-825-11	s METAL, CHIP 2.2K 5% 1/16W
R277	1-216-821-11	s METAL, CHIP 1K 5% 1/16W

(PR-158P BOARD)

Ref. No. or Q'ty	Part No.	SP Description
R278	1-216-821-11	s METAL, CHIP 1K 5% 1/16W
R279	1-216-829-11	s METAL, CHIP 4.7K 5% 1/16W
R280	1-216-865-11	s METAL 3K 0.50% 1/16W
R281	1-216-865-11	s METAL 3K 0.50% 1/16W
R282	1-216-827-11	s METAL, CHIP 3.3K 5% 1/16W
R283	1-216-821-11	s METAL, CHIP 1K 5% 1/16W
R284	1-216-821-11	s METAL, CHIP 1K 5% 1/16W
R285	1-216-823-11	s METAL, CHIP 1.5K 5% 1/16W
R286	1-216-829-11	s METAL, CHIP 4.7K 5% 1/16W
R287	1-216-823-11	s METAL, CHIP 1.5K 5% 1/16W
R288	1-216-823-11	s METAL, CHIP 1.5K 5% 1/16W
R289	1-216-823-11	s METAL, CHIP 1.5K 5% 1/16W
R290	1-216-829-11	s METAL, CHIP 4.7K 5% 1/16W
R291	1-216-826-11	s METAL, CHIP 2.7K 5% 1/16W
R292	1-216-827-11	s METAL, CHIP 3.3K 5% 1/16W
R293	1-216-845-11	s METAL, CHIP 100K 5% 1/16W
R294	1-216-828-11	s METAL, CHIP 3.9K 5% 1/16W
R295	1-216-828-11	s METAL, CHIP 3.9K 5% 1/16W
R296	1-216-828-11	s METAL, CHIP 3.9K 5% 1/16W
RV1	1-238-087-11	s RES, ADJ CERMET 1K
RV2	1-238-087-11	s RES, ADJ CERMET 1K
RV3	1-238-087-11	s RES, ADJ CERMET 1K
RV5	1-238-090-11	s RES, ADJ CERMET 10K
RV6	1-238-089-11	s RES, ADJ CERMET 4.7K
RV7	1-238-089-11	s RES, ADJ CERMET 4.7K
RV8	1-238-088-11	s RES, ADJ, CERMET 2.2K
RV9	1-238-089-11	s RES, ADJ CERMET 4.7K
RV10	1-238-088-11	s RES, ADJ, CERMET 2.2K
RV11	1-238-087-11	s RES, ADJ CERMET 1K
RV12	1-238-087-11	s RES, ADJ CERMET 1K
RV13	1-238-087-11	s RES, ADJ CERMET 1K
RV14	1-238-087-11	s RES, ADJ CERMET 1K
RV15	1-238-087-11	s RES, ADJ CERMET 1K

SG-194 BOARD

Ref. No.
or Q'ty Part No. SP Description

1pc	A-8271-141-A o MOUNTED CIRCUIT BOARD, SG-194 (DXC-930/960MD,XC-009)
C1	1-135-159-21 s TANTALUM, CHIP 10uF 10% 20V
C2	1-164-227-11 s CERAMIC 0.022uF 10% 25V
C3	1-135-159-21 s TANTALUM, CHIP 10uF 10% 20V
C4	1-162-970-11 s CERAMIC, CHIP 0.01uF 10% 25V
C5	1-164-156-11 s CERAMIC 0.1uF 25V
C6	1-135-159-21 s TANTALUM, CHIP 10uF 10% 20V
C7	1-126-392-11 s ELECT, CHIP 100uF 20% 6.3V
C8	1-126-392-11 s ELECT, CHIP 100uF 20% 6.3V
C9	1-135-091-00 s TANTALUM, CHIP 1uF 10% 16V
C10	1-162-927-11 s CERAMIC, CHIP 100PF 5% 50V
C11	1-162-923-11 s CERAMIC, CHIP 47PF 5% 50V
C12	1-162-920-11 s CERAMIC, CHIP 27PF 5% 50V
C13	1-135-190-21 s TANTALUM 0.1uF 20% 20V
C14	1-135-210-11 s TANTALUM 4.7uF 20% 10V
C15	1-162-918-11 s CERAMIC, CHIP 18PF 5% 50V
C16	1-135-190-21 s TANTALUM 0.1uF 20% 20V
C17	1-135-190-21 s TANTALUM 0.1uF 20% 20V
C18	1-135-149-21 s TANTALUM, CHIP 2.2uF 10% 10V
C19	1-135-149-21 s TANTALUM, CHIP 2.2uF 10% 10V
C20	1-135-091-00 s TANTALUM, CHIP 1uF 10% 16V
C21	1-162-970-11 s CERAMIC, CHIP 0.01uF 10% 25V
C22	1-135-166-21 s TANTALUM, CHIP 47uF 10% 10V
C23	1-162-970-11 s CERAMIC, CHIP 0.01uF 10% 25V
C24	1-135-155-21 s TANTALUM CHIP 4.7uF 10% 16V
C25	1-164-156-11 s CERAMIC 0.1uF 25V
C26	1-135-159-21 s TANTALUM, CHIP 10uF 10% 20V
C27	1-135-159-21 s TANTALUM, CHIP 10uF 10% 20V
C28	1-164-156-11 s CERAMIC 0.1uF 25V
C29	1-135-210-11 s TANTALUM 4.7uF 20% 10V
C30	1-164-156-11 s CERAMIC 0.1uF 25V
C31	1-135-210-11 s TANTALUM 4.7uF 20% 10V
C32	1-164-156-11 s CERAMIC 0.1uF 25V
C33	1-162-970-11 s CERAMIC, CHIP 0.01uF 10% 25V
C34	1-135-166-21 s TANTALUM, CHIP 47uF 10% 10V
C35	1-164-156-11 s CERAMIC 0.1uF 25V
C36	1-162-970-11 s CERAMIC, CHIP 0.01uF 10% 25V
C37	1-162-915-11 s CERAMIC, CHIP 10PF 5PF 50V
C38	1-164-363-11 s CERAMIC 560PF 5% 50V
C39	1-135-190-21 s TANTALUM 0.1uF 20% 20V
C40	1-164-677-11 s CERAMIC 0.033uF 10% 16V
C41	1-135-215-21 s TANTALUM 6.8uF 20% 16V
C42	1-135-215-21 s TANTALUM 6.8uF 20% 16V
C43	1-162-923-11 s CERAMIC, CHIP 47PF 5% 50V
C44	1-135-216-11 s TANTALUM 10uF 20% 10V
C45	1-164-156-11 s CERAMIC 0.1uF 25V
C46	1-164-156-11 s CERAMIC 0.1uF 25V
C47	1-162-923-11 s CERAMIC, CHIP 47PF 5% 50V
C48	1-135-216-11 s TANTALUM 10uF 20% 10V
C49	1-162-923-11 s CERAMIC, CHIP 47PF 5% 50V
C50	1-135-190-21 s TANTALUM 0.1uF 20% 20V
C51	1-135-190-21 s TANTALUM 0.1uF 20% 20V
C52	1-162-918-11 s CERAMIC, CHIP 18PF 5% 50V
C53	1-162-923-11 s CERAMIC, CHIP 47PF 5% 50V
C54	1-162-923-11 s CERAMIC, CHIP 47PF 5% 50V
C55	1-162-957-11 s CERAMIC 220PF 5% 50V
C56	1-162-957-11 s CERAMIC 220PF 5% 50V
C57	1-162-957-11 s CERAMIC 220PF 5% 50V

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Ref. No. or Q'ty	Part No.	SP Description
C58	1-162-927-11 s CERAMIC, CHIP 100PF 5% 50V	
C59	1-162-927-11 s CERAMIC, CHIP 100PF 5% 50V	
C60	1-162-923-11 s CERAMIC, CHIP 47PF 5% 50V	
C61	1-135-210-11 s TANTALUM 4.7uF 20% 10V	
C62	1-135-210-11 s TANTALUM 4.7uF 20% 10V	
C63	1-164-315-11 s CERAMIC 470PF 5% 50V	
C65	1-135-149-21 s TANTALUM, CHIP 2.2uF 10% 10V	
C67	1-164-156-11 s CERAMIC 0.1uF 25V	
CN1	1-569-607-11 s CONNECTOR, BOARD TO BOARD 24P	
CP1	1-577-181-11 s OSCILLATOR, CRYSTAL 28.63636MHz	
CP2	1-577-089-11 s OSCILLATOR, CRYSTAL 14.31818MHz	
D1	8-719-800-76 s DIODE 1SS226	
D2	8-719-800-76 s DIODE 1SS226	
D3	8-719-800-76 s DIODE 1SS226	
IC1	8-759-100-96 s IC UPC4558G2	
IC2	8-759-300-71 s IC HD14053BFP	
IC3	8-759-300-71 s IC HD14053BFP	
IC4	8-759-987-27 s IC LM1881M	
IC5	8-759-702-08 s IC NJM360M	
IC6	8-752-335-47 s IC CXD1216M	
IC7	8-759-234-77 s IC TC4S66F	
IC8	8-759-030-16 s IC MC34182M	
IC10	8-752-332-67 s IC CXD1217M	
IC11	8-759-239-34 s IC TC74HC4538AF	
IC12	8-759-100-94 s IC UPC358G2	
IC13	8-759-902-88 s IC SN74LS123NS	
IC14	8-759-209-57 s IC TC4S69F	
L2	1-412-031-11 s INDUCTOR CHIP 47uH	
L3	1-412-032-11 s INDUCTOR CHIP 100uH	
L4	1-412-031-11 s INDUCTOR CHIP 47uH	
Q1	8-729-926-19 s TRANSISTOR 2SC4103-Q	
Q2	8-729-926-19 s TRANSISTOR 2SC4103-Q	
Q3	8-729-117-32 s TRANSISTOR 2SC4177	
Q4	8-729-926-19 s TRANSISTOR 2SC4103-Q	
Q5	8-729-118-58 s TRANSISTOR 2SK852-X4	
Q6	8-729-117-32 s TRANSISTOR 2SC4177	
Q7	8-729-117-16 s TRANSISTOR 2SA1611-M6	
Q8	8-729-117-16 s TRANSISTOR 2SA1611-M6	
Q9	8-729-117-32 s TRANSISTOR 2SC4177	
Q10	8-729-117-32 s TRANSISTOR 2SC4177	
Q11	8-729-117-32 s TRANSISTOR 2SC4177	
Q12	8-729-117-32 s TRANSISTOR 2SC4177	
R1	1-216-827-11 s METAL, CHIP 3.3K 5% 1/16W	
R2	1-216-841-11 s METAL, CHIP 47K 5% 1/16W	
R3	1-216-801-11 s METAL 22 0.50% 1/16W	
R4	1-218-285-11 s METAL, CHIP 75 5% 1/16W	
R5	1-216-837-11 s METAL, CHIP 22K 5% 1/16W	
R6	1-216-837-11 s METAL, CHIP 22K 5% 1/16W	
R7	1-216-809-11 s METAL, CHIP 100 5% 1/16W	
R8	1-216-851-11 s METAL, CHIP 330K 5% 1/16W	
R9	1-216-832-11 s METAL, CHIP 8.2K 5% 1/16W	
R10	1-218-725-11 s METAL 24K 0.50% 1/16W	
R11	1-216-825-11 s METAL, CHIP 2.2K 5% 1/16W	
R12	1-216-847-11 s METAL, CHIP 150K 5% 1/16W	
R13	1-218-344-11 s METAL 7.5K 0.50% 1/16W	
R14	1-218-695-11 s METAL 1.3K 0.50% 1/16W	

(SG-194 BOARD)

Ref. No. or Q'ty	Part No.	SP Description
R15	1-218-289-11	s METAL 510 5% 1/16W
R16	1-216-825-11	s METAL, CHIP 2.2K 5% 1/16W
R17	1-216-841-11	s METAL, CHIP 47K 5% 1/16W
R18	1-216-829-11	s METAL, CHIP 4.7K 5% 1/16W
R19	1-216-842-11	s METAL, CHIP 56K 5% 1/16W
R20	1-216-826-11	s METAL, CHIP 2.7K 5% 1/16W
R21	1-218-714-11	s METAL 8.2K 0.50% 1/16W
R22	1-216-855-11	s METAL 680K 5% 1/16W
R23	1-216-818-11	s METAL, CHIP 560 5% 1/16W
R24	1-216-825-11	s METAL, CHIP 2.2K 5% 1/16W
R25	1-216-811-11	s METAL, CHIP 150 5% 1/16W
R26	1-216-833-11	s METAL, CHIP 10K 5% 1/16W
R28	1-216-833-11	s METAL, CHIP 10K 5% 1/16W
R30	1-216-864-11	s METAL, CHIP 0-OHM
R32	1-216-864-11	s METAL, CHIP 0-OHM
R33	1-216-821-11	s METAL, CHIP 1K 5% 1/16W
R35	1-216-821-11	s METAL, CHIP 1K 5% 1/16W
R36	1-216-830-11	s METAL, CHIP 5.6K 5% 1/16W
R37	1-216-821-11	s METAL, CHIP 1K 5% 1/16W
R38	1-216-825-11	s METAL, CHIP 2.2K 5% 1/16W
R39	1-216-831-11	s METAL, CHIP 6.8K 5% 1/16W
R40	1-216-827-11	s METAL, CHIP 3.3K 5% 1/16W
R41	1-216-833-11	s METAL, CHIP 10K 5% 1/16W
R42	1-216-829-11	s METAL, CHIP 4.7K 5% 1/16W
R43	1-216-833-11	s METAL, CHIP 10K 5% 1/16W
R44	1-216-833-11	s METAL, CHIP 10K 5% 1/16W
R45	1-216-833-11	s METAL, CHIP 10K 5% 1/16W
R46	1-216-841-11	s METAL, CHIP 47K 5% 1/16W
R47	1-216-833-11	s METAL, CHIP 10K 5% 1/16W
R48	1-216-833-11	s METAL, CHIP 10K 5% 1/16W
R50	1-216-825-11	s METAL, CHIP 2.2K 5% 1/16W
R51	1-216-821-11	s METAL, CHIP 1K 5% 1/16W
R52	1-216-823-11	s METAL, CHIP 1.5K 5% 1/16W
R54	1-216-857-11	s METAL, CHIP 1M 5% 1/16W
R55	1-216-857-11	s METAL, CHIP 1M 5% 1/16W
R56	1-216-817-11	s METAL, CHIP 470 5% 1/16W
R57	1-216-864-11	s METAL, CHIP 0-OHM
R59	1-218-740-11	s METAL 100K 0.50% 1/16W
R60	1-218-883-11	s METAL, CHIP 33K 0.50% 1/16W
R61	1-218-724-11	s METAL 22K 0.50% 1/16W
R62	1-218-701-11	s METAL 2.4K 0.50% 1/16W
R63	1-218-716-11	s METAL 10K 0.50% 1/16W
R64	1-216-817-11	s METAL, CHIP 470 5% 1/16W
R65	1-218-668-11	s METAL, CHIP 100 0.50% 1/16W
R66	1-216-817-11	s METAL, CHIP 470 5% 1/16W
R67	1-218-668-11	s METAL, CHIP 100 0.50% 1/16W
R68	1-216-817-11	s METAL, CHIP 470 5% 1/16W
R69	1-216-838-11	s METAL, CHIP 27K 5% 1/16W
R70	1-216-804-11	s METAL 39 5% 1/16W
R71	1-218-700-11	s METAL 2.2K 0.50% 1/16W
R72	1-218-723-11	s METAL 20K 0.50% 1/16W
R73	1-218-716-11	s METAL 10K 0.50% 1/16W
R74	1-218-727-11	s METAL 30K 0.50% 1/16W
R75	1-218-716-11	s METAL 10K 0.50% 1/16W
R76	1-218-716-11	s METAL 10K 0.50% 1/16W
R77	1-216-821-11	s METAL, CHIP 1K 5% 1/16W
R78	1-216-821-11	s METAL, CHIP 1K 5% 1/16W
R79	1-216-821-11	s METAL, CHIP 1K 5% 1/16W
R80	1-218-700-11	s METAL 2.2K 0.50% 1/16W

(SG-194 BOARD)

Ref. No. or Q'ty	Part No.	SP Description
R81	1-216-817-11	s METAL, CHIP 470 5% 1/16W
R82	1-216-817-11	s METAL, CHIP 470 5% 1/16W
R83	1-216-845-11	s METAL, CHIP 100K 5% 1/16W
R84	1-218-716-11	s METAL 10K 0.50% 1/16W
R85	1-216-865-11	s METAL 3K 0.50% 1/16W
R86	1-218-295-11	s METAL 5.6K 0.50% 1/16W
R87	1-216-832-11	s METAL, CHIP 8.2K 5% 1/16W
R88	1-216-825-11	s METAL, CHIP 2.2K 5% 1/16W
R89	1-216-837-11	s METAL, CHIP 22K 5% 1/16W
R90	1-216-826-11	s METAL, CHIP 2.7K 5% 1/16W
R91	1-216-826-11	s METAL, CHIP 2.7K 5% 1/16W
R92	1-216-829-11	s METAL, CHIP 4.7K 5% 1/16W
R93	1-216-826-11	s METAL, CHIP 2.7K 5% 1/16W
R94	1-216-819-11	s METAL, CHIP 680 5% 1/16W
R95	1-216-821-11	s METAL, CHIP 1K 5% 1/16W
R96	1-216-825-11	s METAL, CHIP 2.2K 5% 1/16W
R97	1-216-809-11	s METAL, CHIP 100 5% 1/16W
RV1	1-238-090-11	s RES, ADJ CERMET 10K

SG-194P BOARD

Ref. No. or Q'ty	Part No.	SP Description
1pc	A-8271-142-A o	OUNTED CIRCUIT BOARD, SG-194P (DXC-930P,XC-009P)
C1	1-135-159-21 s	TANTALUM, CHIP 10uF 10% 20V
C2	1-164-227-11 s	CERAMIC 0.022uF 10% 25V
C3	1-135-159-21 s	TANTALUM, CHIP 10uF 10% 20V
C4	1-162-970-11 s	CERAMIC, CHIP 0.01uF 10% 25V
C5	1-164-156-11 s	CERAMIC 0.1uF 25V
C6	1-135-159-21 s	TANTALUM, CHIP 10uF 10% 20V
C7	1-126-392-11 s	ELECT, CHIP 100uF 20% 6.3V
C8	1-126-392-11 s	ELECT, CHIP 100uF 20% 6.3V
C9	1-135-091-00 s	TANTALUM, CHIP 1uF 10% 16V
C10	1-162-927-11 s	CERAMIC, CHIP 100PF 5% 50V
C11	1-162-923-11 s	CERAMIC, CHIP 47PF 5% 50V
C12	1-162-920-11 s	CERAMIC, CHIP 27PF 5% 50V
C13	1-135-190-21 s	TANTALUM 0.1uF 20% 20V
C14	1-135-210-11 s	TANTALUM 4.7uF 20% 10V
C15	1-162-916-11 s	CERAMIC, CHIP 12PF 5% 50V
C16	1-135-190-21 s	TANTALUM 0.1uF 20% 20V
C17	1-135-190-21 s	TANTALUM 0.1uF 20% 20V
C18	1-135-149-21 s	TANTALUM, CHIP 2.2uF 10% 10V
C19	1-135-149-21 s	TANTALUM, CHIP 2.2uF 10% 10V
C20	1-135-091-00 s	TANTALUM, CHIP 1uF 10% 16V
C21	1-162-970-11 s	CERAMIC, CHIP 0.01uF 10% 25V
C22	1-135-166-21 s	TANTALUM, CHIP 47uF 10% 10V
C23	1-162-970-11 s	CERAMIC, CHIP 0.01uF 10% 25V
C24	1-135-155-21 s	TANTAL CHIP 4.7uF 10% 16V
C25	1-164-156-11 s	CERAMIC 0.1uF 25V
C26	1-135-159-21 s	TANTALUM, CHIP 10uF 10% 20V
C27	1-135-159-21 s	TANTALUM, CHIP 10uF 10% 20V
C28	1-164-156-11 s	CERAMIC 0.1uF 25V
C29	1-135-210-11 s	TANTALUM 4.7uF 20% 10V
C30	1-164-156-11 s	CERAMIC 0.1uF 25V
C31	1-135-210-11 s	TANTALUM 4.7uF 20% 10V
C32	1-164-156-11 s	CERAMIC 0.1uF 25V
C33	1-162-970-11 s	CERAMIC, CHIP 0.01uF 10% 25V
C34	1-135-166-21 s	TANTALUM, CHIP 47uF 10% 10V
C35	1-164-156-11 s	CERAMIC 0.1uF 25V
C36	1-162-970-11 s	CERAMIC, CHIP 0.01uF 10% 25V
C37	1-162-915-11 s	CERAMIC, CHIP 10PF 5PF 50V
C38	1-164-363-11 s	CERAMIC 560PF 5% 50V
C39	1-135-190-21 s	TANTALUM 0.1uF 20% 20V
C40	1-164-677-11 s	CERAMIC 0.033uF 10% 16V
C41	1-135-215-21 s	TANTALUM 6.8uF 20% 16V
C42	1-135-215-21 s	TANTALUM 6.8uF 20% 16V
C43	1-162-923-11 s	CERAMIC, CHIP 47PF 5% 50V
C44	1-135-216-11 s	TANTALUM 10uF 20% 10V
C45	1-164-156-11 s	CERAMIC 0.1uF 25V
C46	1-164-156-11 s	CERAMIC 0.1uF 25V
C47	1-162-923-11 s	CERAMIC, CHIP 47PF 5% 50V
C48	1-135-216-11 s	TANTALUM 10uF 20% 10V
C49	1-162-923-11 s	CERAMIC, CHIP 47PF 5% 50V
C50	1-135-190-21 s	TANTALUM 0.1uF 20% 20V
C51	1-135-190-21 s	TANTALUM 0.1uF 20% 20V
C52	1-162-918-11 s	CERAMIC, CHIP 18PF 5% 50V
C53	1-162-923-11 s	CERAMIC, CHIP 47PF 5% 50V
C54	1-162-923-11 s	CERAMIC, CHIP 47PF 5% 50V
C55	1-162-957-11 s	CERAMIC 220PF 5% 50V
C57	1-162-957-11 s	CERAMIC 220PF 5% 50V

(SG-194P BOARD)

Ref. No. or Q'ty	Part No.	SP Description
C58	1-162-927-11 s	CERAMIC, CHIP 100PF 5% 50V
C59	1-162-927-11 s	CERAMIC, CHIP 100PF 5% 50V
C60	1-162-923-11 s	CERAMIC, CHIP 47PF 5% 50V
C61	1-135-210-11 s	TANTALUM 4.7uF 20% 10V
C62	1-135-210-11 s	TANTALUM 4.7uF 20% 10V
C63	1-164-315-11 s	CERAMIC 470PF 5% 50V
C65	1-135-149-21 s	TANTALUM, CHIP 2.2uF 10% 10V
C67	1-164-156-11 s	CERAMIC 0.1uF 25V
CN1	1-569-607-11 s	CONNECTOR, BOARD TO BOARD 24P
CP1	1-577-182-11 s	OSCILLATOR, CRYSTAL
CP2	1-577-183-11 s	OSCILLATOR, CRYSTAL 17.734475 MHZ
D1	8-719-800-76 s	DIODE 1SS226
D2	8-719-800-76 s	DIODE 1SS226
D3	8-719-800-76 s	DIODE 1SS226
IC1	8-759-100-96 s	IC UPC4558G2
IC2	8-759-300-71 s	IC HD14053BFP
IC3	8-759-300-71 s	IC HD14053BFP
IC4	8-759-987-27 s	IC LM1881M
IC5	8-759-702-08 s	IC NJM360M
IC6	8-752-335-47 s	IC CXD1216M
IC7	8-759-234-77 s	IC TC4S66F
IC8	8-759-030-16 s	IC MC34182M
IC10	8-752-332-67 s	IC CXD1217M
IC11	8-759-239-34 s	IC TC74HC4538AF
IC12	8-759-100-94 s	IC UPC358G2
IC13	8-759-902-88 s	IC SN74LS123NS
IC14	8-759-209-57 s	IC TC4S69F
L2	1-412-031-11 s	INDUCTOR CHIP 47uH
L3	1-412-032-11 s	INDUCTOR CHIP 100uH
L4	1-412-031-11 s	INDUCTOR CHIP 47uH
Q1	8-729-926-19 s	TRANSISTOR 2SC4103-Q
Q2	8-729-926-19 s	TRANSISTOR 2SC4103-Q
Q3	8-729-117-32 s	TRANSISTOR 2SC4177
Q4	8-729-926-19 s	TRANSISTOR 2SC4103-Q
Q5	8-729-118-58 s	TRANSISTOR 2SK852-X4
Q8	8-729-117-16 s	TRANSISTOR 2SA1611-M6
Q9	8-729-117-32 s	TRANSISTOR 2SC4177
Q10	8-729-117-32 s	TRANSISTOR 2SC4177
Q11	8-729-117-32 s	TRANSISTOR 2SC4177
Q12	8-729-117-32 s	TRANSISTOR 2SC4177
R1	1-216-827-11 s	METAL, CHIP 3.3K 5% 1/16W
R2	1-216-841-11 s	METAL, CHIP 47K 5% 1/16W
R3	1-216-801-11 s	METAL 22 0.50% 1/16W
R4	1-218-285-11 s	METAL, CHIP 75 5% 1/16W
R5	1-216-837-11 s	METAL, CHIP 22K 5% 1/16W
R6	1-216-837-11 s	METAL, CHIP 22K 5% 1/16W
R7	1-216-809-11 s	METAL, CHIP 100 5% 1/16W
R8	1-216-851-11 s	METAL, CHIP 330K 5% 1/16W
R9	1-216-832-11 s	METAL, CHIP 8.2K 5% 1/16W
R10	1-218-725-11 s	METAL 24K 0.50% 1/16W
R11	1-216-825-11 s	METAL, CHIP 2.2K 5% 1/16W
R12	1-216-847-11 s	METAL, CHIP 150K 5% 1/16W
R13	1-218-344-11 s	METAL 7.5K 0.50% 1/16W
R14	1-218-695-11 s	METAL 1.3K 0.50% 1/16W
R15	1-218-289-11 s	METAL 510 5% 1/16W
R16	1-216-825-11 s	METAL, CHIP 2.2K 5% 1/16W

DXC-8Q/930P
DXC-8Q/MD
XC-009C09P

(SG-194P BOARD)

Ref. No.
or Q'ty Part No. SP Description

R17 1-216-841-11 s METAL, CHIP 47K 5% 1/16W
 R18 1-216-829-11 s METAL, CHIP 4.7K 5% 1/16W
 R19 1-216-842-11 s METAL, CHIP 56K 5% 1/16W
 R20 1-216-826-11 s METAL, CHIP 2.7K 5% 1/16W
 R21 1-218-714-11 s METAL 8.2K 0.50% 1/16W

R22 1-216-855-11 s METAL 680K 5% 1/16W
 R23 1-216-818-11 s METAL, CHIP 560 5% 1/16W
 R24 1-216-825-11 s METAL, CHIP 2.2K 5% 1/16W
 R25 1-216-811-11 s METAL, CHIP 150 5% 1/16W
 R26 1-216-833-11 s METAL, CHIP 10K 5% 1/16W

R28 1-216-833-11 s METAL, CHIP 10K 5% 1/16W
 R29 1-216-864-11 s METAL, CHIP 0-OHM
 R31 1-216-864-11 s METAL, CHIP 0-OHM
 R33 1-216-821-11 s METAL, CHIP 1K 5% 1/16W
 R34 1-216-864-11 s METAL, CHIP 0-OHM

R35 1-216-821-11 s METAL, CHIP 1K 5% 1/16W
 R36 1-216-830-11 s METAL, CHIP 5.6K 5% 1/16W
 R37 1-216-821-11 s METAL, CHIP 1K 5% 1/16W
 R38 1-216-825-11 s METAL, CHIP 2.2K 5% 1/16W
 R39 1-216-831-11 s METAL, CHIP 6.8K 5% 1/16W

R40 1-216-827-11 s METAL, CHIP 3.3K 5% 1/16W
 R41 1-216-833-11 s METAL, CHIP 10K 5% 1/16W
 R42 1-216-829-11 s METAL, CHIP 4.7K 5% 1/16W
 R43 1-216-833-11 s METAL, CHIP 10K 5% 1/16W
 R44 1-216-833-11 s METAL, CHIP 10K 5% 1/16W

R45 1-216-833-11 s METAL, CHIP 10K 5% 1/16W
 R49 1-216-864-11 s METAL, CHIP 0-OHM
 R50 1-216-825-11 s METAL, CHIP 2.2K 5% 1/16W
 R51 1-216-821-11 s METAL, CHIP 1K 5% 1/16W
 R52 1-216-823-11 s METAL, CHIP 1.5K 5% 1/16W

R53 1-216-864-11 s METAL, CHIP 0-OHM
 R54 1-216-857-11 s METAL, CHIP 1M 5% 1/16W
 R55 1-216-857-11 s METAL, CHIP 1M 5% 1/16W
 R56 1-216-817-11 s METAL, CHIP 470 5% 1/16W
 R58 1-216-864-11 s METAL, CHIP 0-OHM

R59 1-218-740-11 s METAL 100K 0.50% 1/16W
 R60 1-218-883-11 s METAL, CHIP 33K 0.50% 1/16W
 R61 1-218-724-11 s METAL 22K 0.50% 1/16W
 R62 1-218-701-11 s METAL 2.4K 0.50% 1/16W
 R63 1-218-716-11 s METAL 10K 0.50% 1/16W

R64 1-216-817-11 s METAL, CHIP 470 5% 1/16W
 R65 1-218-668-11 s METAL, CHIP 100 0.50% 1/16W
 R66 1-216-817-11 s METAL, CHIP 470 5% 1/16W
 R67 1-218-668-11 s METAL, CHIP 100 0.50% 1/16W
 R68 1-216-817-11 s METAL, CHIP 470 5% 1/16W

R69 1-216-838-11 s METAL, CHIP 27K 5% 1/16W
 R70 1-216-804-11 s METAL 39 5% 1/16W
 R71 1-218-700-11 s METAL 2.2K 0.50% 1/16W
 R72 1-218-721-11 s METAL 16K 0.50% 1/16W
 R73 1-218-716-11 s METAL 10K 0.50% 1/16W

R74 1-218-732-11 s METAL 47K 0.50% 1/16W
 R75 1-218-716-11 s METAL 10K 0.50% 1/16W
 R76 1-218-716-11 s METAL 10K 0.50% 1/16W
 R77 1-216-821-11 s METAL, CHIP 1K 5% 1/16W
 R78 1-216-821-11 s METAL, CHIP 1K 5% 1/16W

R79 1-216-821-11 s METAL, CHIP 1K 5% 1/16W
 R80 1-218-700-11 s METAL 2.2K 0.50% 1/16W
 R81 1-216-817-11 s METAL, CHIP 470 5% 1/16W
 R82 1-216-817-11 s METAL, CHIP 470 5% 1/16W

(SG-194P BOARD)

Ref. No.
or Q'ty Part No. SP Description

R83 1-216-845-11 s METAL, CHIP 100K 5% 1/16W
 R84 1-218-716-11 s METAL 10K 0.50% 1/16W
 R85 1-218-727-11 s METAL 30K 0.50% 1/16W
 R86 1-218-295-11 s METAL 5.6K 0.50% 1/16W
 R87 1-216-832-11 s METAL, CHIP 8.2K 5% 1/16W

R88 1-216-825-11 s METAL, CHIP 2.2K 5% 1/16W
 R89 1-216-837-11 s METAL, CHIP 22K 5% 1/16W
 R90 1-216-826-11 s METAL, CHIP 2.7K 5% 1/16W
 R91 1-216-826-11 s METAL, CHIP 2.7K 5% 1/16W
 R92 1-216-829-11 s METAL, CHIP 4.7K 5% 1/16W

R93 1-216-826-11 s METAL, CHIP 2.7K 5% 1/16W
 R94 1-216-819-11 s METAL, CHIP 680 5% 1/16W
 R95 1-216-821-11 s METAL, CHIP 1K 5% 1/16W
 R96 1-216-825-11 s METAL, CHIP 2.2K 5% 1/16W
 R97 1-216-809-11 s METAL, CHIP 100 5% 1/16W

RV1 1-238-090-11 s RES, ADJ CERMET 10K

TG-102 BOARD

Ref. No. or Q'ty	Part No.	SP Description
lpc	A-8271-135-A o	OUNTED CIRCUIT BOARD, TG-102 (DXC-930/960MD/XC-009)
C1	1-126-194-21 s	ELECT 1.5uF 20% 50V
C2	1-164-005-11 s	CERAMIC, CHIP 0.47uF 25V
C3	1-126-194-21 s	ELECT 1.5uF 20% 50V
C4	1-135-157-21 s	TANTALUM, CHIP 10uF 10% 6.3V
C5	1-164-156-11 s	CERAMIC 0.1uF 25V
C6	1-164-156-11 s	CERAMIC 0.1uF 25V
C7	1-135-157-21 s	TANTALUM, CHIP 10uF 10% 6.3V
C8	1-135-157-21 s	TANTALUM, CHIP 10uF 10% 6.3V
C9	1-135-214-21 s	TANTALUM 4.7uF 20% 20V
C10	1-164-156-11 s	CERAMIC 0.1uF 25V
C11	1-164-156-11 s	CERAMIC 0.1uF 25V
C12	1-126-199-11 s	ELECT 6.8uF 20% 35V
C13	1-135-180-21 s	TANTALUM, CHIP 3.3uF 20% 6.3V
C14	1-164-156-11 s	CERAMIC 0.1uF 25V
C15	1-135-157-21 s	TANTALUM, CHIP 10uF 10% 6.3V
C17	1-162-970-11 s	CERAMIC, CHIP 0.01uF 10% 25V
C18	1-126-194-21 s	ELECT 1.5uF 20% 50V
C19	1-164-005-11 s	CERAMIC, CHIP 0.47uF 25V
C20	1-126-194-21 s	ELECT 1.5uF 20% 50V
C21	1-162-919-11 s	CERAMIC, CHIP 22PF 5% 50V
C22	1-162-919-11 s	CERAMIC, CHIP 22PF 5% 50V
C23	1-135-157-21 s	TANTALUM, CHIP 10uF 10% 6.3V
C24	1-135-214-21 s	TANTALUM 4.7uF 20% 20V
C25	1-164-156-11 s	CERAMIC 0.1uF 25V
C26	1-164-156-11 s	CERAMIC 0.1uF 25V
C27	1-126-199-11 s	ELECT 6.8uF 20% 35V
C28	1-135-180-21 s	TANTALUM, CHIP 3.3uF 20% 6.3V
C29	1-164-156-11 s	CERAMIC 0.1uF 25V
C30	1-164-156-11 s	CERAMIC 0.1uF 25V
C31	1-135-157-21 s	TANTALUM, CHIP 10uF 10% 6.3V
C32	1-164-156-11 s	CERAMIC 0.1uF 25V
C33	1-135-157-21 s	TANTALUM, CHIP 10uF 10% 6.3V
C34	1-164-156-11 s	CERAMIC 0.1uF 25V
C35	1-135-157-21 s	TANTALUM, CHIP 10uF 10% 6.3V
C36	1-164-156-11 s	CERAMIC 0.1uF 25V
C37	1-162-964-11 s	CERAMIC 0.001uF 10% 50V
C38	1-162-919-11 s	CERAMIC, CHIP 22PF 5% 50V
C39	1-135-157-21 s	TANTALUM, CHIP 10uF 10% 6.3V
C40	1-164-156-11 s	CERAMIC 0.1uF 25V
C41	1-135-180-21 s	TANTALUM, CHIP 3.3uF 20% 6.3V
C42	1-164-156-11 s	CERAMIC 0.1uF 25V
C43	1-162-970-11 s	CERAMIC, CHIP 0.01uF 10% 25V
C44	1-162-919-11 s	CERAMIC, CHIP 22PF 5% 50V
C45	1-126-194-21 s	ELECT 1.5uF 20% 50V
C46	1-164-005-11 s	CERAMIC, CHIP 0.47uF 25V
C47	1-126-194-21 s	ELECT 1.5uF 20% 50V
C48	1-162-919-11 s	CERAMIC, CHIP 22PF 5% 50V
C49	1-135-157-21 s	TANTALUM, CHIP 10uF 10% 6.3V
C50	1-135-214-21 s	TANTALUM 4.7uF 20% 20V
C51	1-164-156-11 s	CERAMIC 0.1uF 25V
C52	1-126-199-11 s	ELECT 6.8uF 20% 35V
C53	1-135-157-21 s	TANTALUM, CHIP 10uF 10% 6.3V
C54	1-164-156-11 s	CERAMIC 0.1uF 25V
CN1	1-691-630-21 o	CONNECTOR, FFC/FPC (ZIF) 20P
CN2	1-691-630-21 o	CONNECTOR, FFC/FPC (ZIF) 20P
CN3	1-691-630-21 o	CONNECTOR, FFC/FPC (ZIF) 20P

(TG-102 BOARD)

Ref. No. or Q'ty	Part No.	SP Description
D1	8-719-820-05 s	DIODE 1SS181
D2	8-719-800-76 s	DIODE 1SS226
D3	8-719-820-05 s	DIODE 1SS181
D4	8-719-820-05 s	DIODE 1SS181
D5	8-719-800-76 s	DIODE 1SS226
D6	8-719-820-05 s	DIODE 1SS181
D7	8-719-820-05 s	DIODE 1SS181
D8	8-719-800-76 s	DIODE 1SS226
D9	8-719-820-05 s	DIODE 1SS181
IC1	8-752-327-48 s	IC CXD1250N
IC2	8-752-351-03 s	IC CXD1256AR
IC3	8-752-327-48 s	IC CXD1250N
IC4	8-759-925-90 s	IC SN74HC74NS
IC5	8-759-927-46 s	IC SN74HCO0NS
IC6	8-752-327-48 s	IC CXD1250N
IC7	8-752-351-03 s	IC CXD1256AR
IC8	8-759-036-25 s	IC MC74AC04M
Q1	8-729-117-32 s	TRANSISTOR 2SC4177
Q2	8-729-429-44 s	TRANSISTOR XP1501
Q3	8-729-429-98 s	TRANSISTOR XP1401
Q5	8-729-117-32 s	TRANSISTOR 2SC4177
Q6	8-729-429-44 s	TRANSISTOR XP1501
Q7	8-729-429-98 s	TRANSISTOR XP1401
Q8	8-729-429-98 s	TRANSISTOR XP1401
Q9	8-729-117-16 s	TRANSISTOR 2SA1611-M6
Q10	8-729-117-32 s	TRANSISTOR 2SC4177
Q11	8-729-429-44 s	TRANSISTOR XP1501
R1	1-216-850-11 s	METAL 270K 5% 1/16W
R2	1-216-833-11 s	METAL, CHIP 10K 5% 1/16W
R3	1-216-829-11 s	METAL, CHIP 4.7K 5% 1/16W
R4	1-216-843-11 s	METAL, CHIP 68K 5% 1/16W
R5	1-216-845-11 s	METAL, CHIP 100K 5% 1/16W
R6	1-216-864-11 s	METAL, CHIP 0-OHM
R7	1-216-845-11 s	METAL, CHIP 100K 5% 1/16W
R8	1-216-857-11 s	METAL, CHIP 1M 5% 1/16W
R9	1-216-835-11 s	METAL, CHIP 15K 5% 1/16W
R10	1-216-833-11 s	METAL, CHIP 10K 5% 1/16W
R11	1-216-837-11 s	METAL, CHIP 22K 5% 1/16W
R12	1-216-829-11 s	METAL, CHIP 4.7K 5% 1/16W
R16	1-216-864-11 s	METAL, CHIP 0-OHM
R17	1-216-850-11 s	METAL 270K 5% 1/16W
R18	1-216-833-11 s	METAL, CHIP 10K 5% 1/16W
R19	1-216-829-11 s	METAL, CHIP 4.7K 5% 1/16W
R20	1-216-843-11 s	METAL, CHIP 68K 5% 1/16W
R21	1-216-813-11 s	METAL, CHIP 220 5% 1/16W
R22	1-216-845-11 s	METAL, CHIP 100K 5% 1/16W
R23	1-216-845-11 s	METAL, CHIP 100K 5% 1/16W
R24	1-216-857-11 s	METAL, CHIP 1M 5% 1/16W
R25	1-216-835-11 s	METAL, CHIP 15K 5% 1/16W
R26	1-216-833-11 s	METAL, CHIP 10K 5% 1/16W
R27	1-216-837-11 s	METAL, CHIP 22K 5% 1/16W
R28	1-216-829-11 s	METAL, CHIP 4.7K 5% 1/16W
R29	1-216-813-11 s	METAL, CHIP 220 5% 1/16W
R30	1-216-833-11 s	METAL, CHIP 10K 5% 1/16W
R31	1-216-829-11 s	METAL, CHIP 4.7K 5% 1/16W
R32	1-216-845-11 s	METAL, CHIP 100K 5% 1/16W
R33	1-216-813-11 s	METAL, CHIP 220 5% 1/16W

(TG-102 BOARD)

Ref. No.
or Q'ty Part No. SP Description

R34 1-216-857-11 s METAL, CHIP 1M 5% 1/16W
 R35 1-216-835-11 s METAL, CHIP 15K 5% 1/16W
 R36 1-216-834-11 s METAL, CHIP 12K 5% 1/16W
 R37 1-216-829-11 s METAL, CHIP 4.7K 5% 1/16W
 R38 1-216-813-11 s METAL, CHIP 220 5% 1/16W
 R39 1-216-813-11 s METAL, CHIP 220 5% 1/16W
 R40 1-216-850-11 s METAL 270K 5% 1/16W
 R41 1-216-843-11 s METAL, CHIP 68K 5% 1/16W
 R42 1-216-845-11 s METAL, CHIP 100K 5% 1/16W
 R43 1-216-857-11 s METAL, CHIP 1M 5% 1/16W
 R44 1-216-835-11 s METAL, CHIP 15K 5% 1/16W
 R45 1-216-833-11 s METAL, CHIP 10K 5% 1/16W
 R46 1-216-837-11 s METAL, CHIP 22K 5% 1/16W
 R47 1-216-821-11 s METAL, CHIP 1K 5% 1/16W
 RV1 1-238-092-11 s RES, ADJ CERMET 47K
 RV2 1-238-091-11 s RES, ADJ CERMET 22K
 RV3 1-238-092-11 s RES, ADJ CERMET 47K
 RV4 1-238-091-11 s RES, ADJ CERMET 22K
 RV5 1-238-091-11 s RES, ADJ CERMET 22K
 RV6 1-238-092-11 s RES, ADJ CERMET 47K

TG-102P BOARD

Ref. No.
or Q'ty Part No. SP Description

1pc A-8271-137-A o MOUNTED CIRCUIT BOARD, TG-102P
 (DXC-930P,XC-009P)
 C1 1-126-194-21 s ELECT 1.5uF 20% 50V
 C2 1-164-005-11 s CERAMIC, CHIP 0.47uF 25V
 C3 1-126-194-21 s ELECT 1.5uF 20% 50V
 C4 1-135-157-21 s TANTALUM, CHIP 10uF 10% 6.3V
 C5 1-164-156-11 s CERAMIC 0.1uF 25V
 C6 1-164-156-11 s CERAMIC 0.1uF 25V
 C7 1-135-157-21 s TANTALUM, CHIP 10uF 10% 6.3V
 C8 1-135-157-21 s TANTALUM, CHIP 10uF 10% 6.3V
 C9 1-135-214-21 s TANTALUM 4.7uF 20% 20V
 C10 1-164-156-11 s CERAMIC 0.1uF 25V
 C11 1-164-156-11 s CERAMIC 0.1uF 25V
 C12 1-126-199-11 s ELECT 6.8uF 20% 35V
 C13 1-135-180-21 s TANTALUM, CHIP 3.3uF 20% 6.3V
 C14 1-164-156-11 s CERAMIC 0.1uF 25V
 C15 1-135-157-21 s TANTALUM, CHIP 10uF 10% 6.3V
 C17 1-162-970-11 s CERAMIC, CHIP 0.01uF 10% 25V
 C18 1-126-194-21 s ELECT 1.5uF 20% 50V
 C19 1-164-005-11 s CERAMIC, CHIP 0.47uF 25V
 C20 1-126-194-21 s ELECT 1.5uF 20% 50V
 C21 1-162-919-11 s CERAMIC, CHIP 22PF 5% 50V
 C22 1-162-919-11 s CERAMIC, CHIP 22PF 5% 50V
 C23 1-135-157-21 s TANTALUM, CHIP 10uF 10% 6.3V
 C24 1-135-214-21 s TANTALUM 4.7uF 20% 20V
 C25 1-164-156-11 s CERAMIC 0.1uF 25V
 C26 1-164-156-11 s CERAMIC 0.1uF 25V
 C27 1-126-199-11 s ELECT 6.8uF 20% 35V
 C28 1-135-180-21 s TANTALUM, CHIP 3.3uF 20% 6.3V
 C29 1-164-156-11 s CERAMIC 0.1uF 25V
 C30 1-164-156-11 s CERAMIC 0.1uF 25V
 C31 1-135-157-21 s TANTALUM, CHIP 10uF 10% 6.3V
 C32 1-164-156-11 s CERAMIC 0.1uF 25V
 C33 1-135-157-21 s TANTALUM, CHIP 10uF 10% 6.3V
 C34 1-164-156-11 s CERAMIC 0.1uF 25V
 C35 1-135-157-21 s TANTALUM, CHIP 10uF 10% 6.3V
 C36 1-164-156-11 s CERAMIC 0.1uF 25V
 C37 1-162-964-11 s CERAMIC 0.001uF 10% 50V
 C38 1-162-919-11 s CERAMIC, CHIP 22PF 5% 50V
 C39 1-135-157-21 s TANTALUM, CHIP 10uF 10% 6.3V
 C40 1-164-156-11 s CERAMIC 0.1uF 25V
 C41 1-135-180-21 s TANTALUM, CHIP 3.3uF 20% 6.3V
 C42 1-164-156-11 s CERAMIC 0.1uF 25V
 C43 1-162-970-11 s CERAMIC, CHIP 0.01uF 10% 25V
 C44 1-162-919-11 s CERAMIC, CHIP 22PF 5% 50V
 C45 1-126-194-21 s ELECT 1.5uF 20% 50V
 C46 1-164-005-11 s CERAMIC, CHIP 0.47uF 25V
 C47 1-126-194-21 s ELECT 1.5uF 20% 50V
 C48 1-162-919-11 s CERAMIC, CHIP 22PF 5% 50V
 C49 1-135-157-21 s TANTALUM, CHIP 10uF 10% 6.3V
 C50 1-135-214-21 s TANTALUM 4.7uF 20% 20V
 C51 1-164-156-11 s CERAMIC 0.1uF 25V
 C52 1-126-199-11 s ELECT 6.8uF 20% 35V
 C53 1-135-157-21 s TANTALUM, CHIP 10uF 10% 6.3V
 C54 1-164-156-11 s CERAMIC 0.1uF 25V
 CN1 1-691-630-21 o CONNECTOR, FFC/FPC (ZIF) 20P
 CN2 1-691-630-21 o CONNECTOR, FFC/FPC (ZIF) 20P
 CN3 1-691-630-21 o CONNECTOR, FFC/FPC (ZIF) 20P

(TG-102P BOARD)

Ref. No. or Q'ty	Part No.	SP Description
D1	8-719-820-05 s	DIODE 1SS181
D2	8-719-800-76 s	DIODE 1SS226
D3	8-719-820-05 s	DIODE 1SS181
D4	8-719-820-05 s	DIODE 1SS181
D5	8-719-800-76 s	DIODE 1SS226
D6	8-719-820-05 s	DIODE 1SS181
D7	8-719-820-05 s	DIODE 1SS181
D8	8-719-800-76 s	DIODE 1SS226
D9	8-719-820-05 s	DIODE 1SS181
IC1	8-752-327-48 s	IC CXD1250N
IC2	8-752-351-03 s	IC CXD1256AR
IC3	8-752-327-48 s	IC CXD1250N
IC4	8-759-925-90 s	IC SN74HC74NS
IC5	8-759-927-46 s	IC SN74HCOONS
IC6	8-752-327-48 s	IC CXD1250N
IC7	8-752-351-03 s	IC CXD1256AR
IC8	8-759-036-25 s	IC MC74AC04M
Q1	8-729-117-32 s	TRANSISTOR 2SC4177
Q2	8-729-429-44 s	TRANSISTOR XP1501
Q3	8-729-429-98 s	TRANSISTOR XP1401
Q5	8-729-117-32 s	TRANSISTOR 2SC4177
Q6	8-729-429-44 s	TRANSISTOR XP1501
Q7	8-729-429-98 s	TRANSISTOR XP1401
Q8	8-729-429-98 s	TRANSISTOR XP1401
Q9	8-729-117-16 s	TRANSISTOR 2SA1611-M6
Q10	8-729-117-32 s	TRANSISTOR 2SC4177
Q11	8-729-429-44 s	TRANSISTOR XP1501
R1	1-216-850-11 s	METAL 270K 5% 1/16W
R2	1-216-833-11 s	METAL, CHIP 10K 5% 1/16W
R3	1-216-829-11 s	METAL, CHIP 4.7K 5% 1/16W
R4	1-216-843-11 s	METAL, CHIP 68K 5% 1/16W
R5	1-216-845-11 s	METAL, CHIP 100K 5% 1/16W
R6	1-216-864-11 s	METAL, CHIP 0-OHM
R7	1-216-845-11 s	METAL, CHIP 100K 5% 1/16W
R8	1-216-857-11 s	METAL, CHIP 1M 5% 1/16W
R9	1-216-835-11 s	METAL, CHIP 15K 5% 1/16W
R10	1-216-833-11 s	METAL, CHIP 10K 5% 1/16W
R11	1-216-837-11 s	METAL, CHIP 22K 5% 1/16W
R12	1-216-829-11 s	METAL, CHIP 4.7K 5% 1/16W
R15	1-216-864-11 s	METAL, CHIP 0-OHM
R17	1-216-850-11 s	METAL 270K 5% 1/16W
R18	1-216-833-11 s	METAL, CHIP 10K 5% 1/16W
R19	1-216-829-11 s	METAL, CHIP 4.7K 5% 1/16W
R20	1-216-843-11 s	METAL, CHIP 68K 5% 1/16W
R21	1-216-813-11 s	METAL, CHIP 220 5% 1/16W
R22	1-216-845-11 s	METAL, CHIP 100K 5% 1/16W
R23	1-216-845-11 s	METAL, CHIP 100K 5% 1/16W
R24	1-216-857-11 s	METAL, CHIP 1M 5% 1/16W
R25	1-216-835-11 s	METAL, CHIP 15K 5% 1/16W
R26	1-216-833-11 s	METAL, CHIP 10K 5% 1/16W
R27	1-216-837-11 s	METAL, CHIP 22K 5% 1/16W
R28	1-216-829-11 s	METAL, CHIP 4.7K 5% 1/16W
R29	1-216-813-11 s	METAL, CHIP 220 5% 1/16W
R30	1-216-833-11 s	METAL, CHIP 10K 5% 1/16W
R31	1-216-829-11 s	METAL, CHIP 4.7K 5% 1/16W
R32	1-216-845-11 s	METAL, CHIP 100K 5% 1/16W
R33	1-216-813-11 s	METAL, CHIP 220 5% 1/16W

(TG-102P BOARD)

Ref. No. or Q'ty	Part No.	SP Description
R34	1-216-857-11 s	METAL, CHIP 1M 5% 1/16W
R35	1-216-835-11 s	METAL, CHIP 15K 5% 1/16W
R36	1-216-834-11 s	METAL, CHIP 12K 5% 1/16W
R37	1-216-829-11 s	METAL, CHIP 4.7K 5% 1/16W
R38	1-216-813-11 s	METAL, CHIP 220 5% 1/16W
R39	1-216-813-11 s	METAL, CHIP 220 5% 1/16W
R40	1-216-850-11 s	METAL 270K 5% 1/16W
R41	1-216-843-11 s	METAL, CHIP 68K 5% 1/16W
R42	1-216-845-11 s	METAL, CHIP 100K 5% 1/16W
R43	1-216-857-11 s	METAL, CHIP 1M 5% 1/16W
R44	1-216-835-11 s	METAL, CHIP 15K 5% 1/16W
R45	1-216-833-11 s	METAL, CHIP 10K 5% 1/16W
R46	1-216-837-11 s	METAL, CHIP 22K 5% 1/16W
R47	1-216-821-11 s	METAL, CHIP 1K 5% 1/16W
RV1	1-238-092-11 s	RES, ADJ CERMET 47K
RV2	1-238-091-11 s	RES, ADJ CERMET 22K
RV3	1-238-092-11 s	RES, ADJ CERMET 47K
RV4	1-238-091-11 s	RES, ADJ CERMET 22K
RV5	1-238-091-11 s	RES, ADJ CERMET 22K
RV6	1-238-092-11 s	RES, ADJ CERMET 47K

FRAME		

Ref. No. or Q'ty	Part No.	SP Description
1pc	1-547-463-11 o	FILTER UNIT, OPTICAL
CN1F(to MB-380 board)	1-949-642-11 o	HARNESS (ZOOM)
	1-565-122-11 o	HOUSING, 3P
	1-565-164-21 o	CONTACT, FEMALE AWG26-28
CN12F(to MB-380 board)	1-949-643-11 o	HARNESS (IRIS)
	1-565-123-11 o	HOUSING, 4P
	1-565-164-21 o	CONTACT, FEMALE AWG26-28
CN3	1-562-222-21 s	CONNECTOR, 6P FEMALE "LENS"
CN4	1-691-629-11 s	CONNECTOR, 20P MALE "CCU" (DXC-930/93OP/960MD)
CN4	1-562-381-00 s	CONNECTOR, 12P MALE "DC IN/VBS" (XC-009/009P)
CN5	1-580-090-11 s	CONNECTOR, D-SUB 9P "RGB/SYNC"
CN6	1-562-381-00 s	CONNECTOR, 12P MALE "DC IN/REMOTE" (DXC-930/93OP/960MD)
CN6	1-563-929-11 s	CONNECTOR, 4P FEMALE "CONTROL" (XC-009/009P)
CN7	1-580-724-21 s	CONNECTOR, BNC "GENLOCK"
CN8	1-580-724-21 s	CONNECTOR, BNC "VIDEO OUT"

DXC-930/93OP
DXC-930/93MD
XC-009/009P

SECTION E CHANGED PARTS

NOTE: The numbers identified by making with) are matching with each serial numbers.

DXC-930

112) Serial No. 10071 through 10120
 201) Serial No. 10121 through 10170
 202) Serial No. 10171 through 10270
 203) Serial No. 10271 through 10320
 204) Serial No. 10321 through 10570
 207) Serial No. 10571 and higher

DXC-930P

112) Serial No. 10131 through 10230
 201) Serial No. 10231 through 10380
 202) Serial No. 10381 through 10480
 203) Serial No. 10481 through 10580
 204) Serial No. 10581 through 10980
 207) Serial No. 10981 and higher
 207) Serial No. 50061 and higher (UC)

DXC-960MD

112) Serial No. 10001 through 10050
 203) Serial No. 10051 through 10150
 204) Serial No. 10151 through 10200
 207) Serial No. 10251 and higher

XC-009

112) Serial No. 10071 through 10120
 201) Serial No. 10121 through 10170
 204) Serial No. 10171 through 10220
 207) Serial No. 10321 and higher

XC-009P

112) Serial No. 10001 through 10030
 201) Serial No. 10031 through 10060
 204) Serial No. 10061 through 10110
 207) Serial No. 10111 and higher

AT-69 BOARD

OLD) IC20 8-759-064-54 s IC HD63B05Y0E53F
 201) IC20 8-759-078-51 s IC HD63B05Y0E64F

IF-354/354P BOARD

OLD) C62 NOT IN USE.
 203) C62 1-135-210-11 s TANTALUM 4.7uF 20% 10V
 OLD) C63 NOT IN USE.
 203) C63 1-135-210-11 s TANTALUM 4.7uF 20% 10V
 OLD) C64 NOT IN USE.
 203) C64 1-162-911-11 s CERAMIC, CHIP 6PF 50V

CN-579 BOARD(For DXC-930/930P/960MD)

OLD) C22 NOT IN USE.
 112) C22 1-135-159-21 s TANTALUM, CHIP 10uF 10% 20V
 OLD) R37 1-218-298-11 s METAL, CHIP 2.2K 1% 1/16W
 207) R37 1-218-271-11 s METAL 2K 0.50% 1/16W
 OLD) R38 1-216-864-11 s METAL, CHIP 0-OHM
 207) R38 1-218-286-11 s METAL, CHIP 91 0.50% 1/16W

OLD) Q64 NOT IN USE.
 203) Q64 8-729-427-83 s TRANSISTOR XP6501
 OLD) R99 1-216-827-11 s METAL, CHIP 3.3K 5% 1/16W
 203) R99 1-216-823-11 s METAL, CHIP 1.5K 5% 1/16W
 OLD) R117 1-216-807-11 s METAL, CHIP 68 5% 1/16W
 202) R117 1-216-864-11 s METAL, CHIP 0-OHM
 OLD) R142 1-216-808-11 s METAL, CHIP 82 5% 1/16W
 202) R142 1-216-864-11 s METAL, CHIP 0-OHM
 OLD) R146 1-216-827-11 s METAL, CHIP 3.3K 5% 1/16W
 203) R146 1-216-825-11 s METAL, CHIP 2.2K 5% 1/16W
 OLD) R156 NOT IN USE.
 203) R156 1-216-833-11 s METAL, CHIP 10K 5% 1/16W

CN-580 BOARD(For XC-009/009P)

OLD) R31 1-216-864-11 s METAL, CHIP 0-OHM
 207) R31 1-218-286-11 s METAL, CHIP 91 0.50% 1/16W
 OLD) R32 1-218-298-11 s METAL, CHIP 2.2K 1% 1/16W
 207) R32 1-218-271-11 s METAL 2K 0.50% 1/16W

OLD) R157 NOT IN USE.
 203) R157 1-216-827-11 s METAL, CHIP 3.3K 5% 1/16W
 OLD) R158 NOT IN USE.
 203) R158 1-218-740-11 s METAL, CHIP 100K 0.50% 1/16W
 204) R158 1-218-739-11 s METAL, CHIP 91K 0.50% 1/16W
 203) R159 NOT IN USE.
 203) R159 1-218-700-11 s METAL 2.2K 0.50% 1/16W

MB-380 BOARD

(PR-158 BOARD)

OLD) CN10 1-690-670-11 s CABLE, FLAT {1.0MM} 15P
 203) CN10 1-690-670-12 s CABLE, FLAT {1.0MM} 15P
 OLD) CN11 1-690-670-11 s CABLE, FLAT {1.0MM} 15P
 203) CN11 1-690-670-12 s CABLE, FLAT {1.0MM} 15P
 OLD) L3 1-412-026-11 s INDUCTOR CHIP 1uH
 203) L3 DELETED.

OLD) L9 NOT IN USE.
 112) L9 1-412-535-41 s INDUCTOR 68UH

OLD) R172 1-216-826-11 s METAL, CHIP 2.7K 5% 1/16W
 203) R172 1-216-827-11 s METAL, CHIP 3.3K 5% 1/16W
 OLD) R173 1-216-830-11 s METAL, CHIP 5.6K 5% 1/16W
 203) R173 1-216-825-11 s METAL, CHIP 2.2K 5% 1/16W
 204) R173 1-216-827-11 s METAL, CHIP 3.3K 5% 1/16W
 OLD) R177 1-216-829-11 s METAL, CHIP 4.7K 5% 1/16W
 203) R177 1-216-825-11 s METAL, CHIP 2.2K 5% 1/16W
 OLD) R180 1-216-825-11 s METAL, CHIP 2.2K 5% 1/16W
 204) R180 1-216-829-11 s METAL, CHIP 4.7K 5% 1/16W
 OLD) R196 NOT IN USE.
 203) R196 1-218-252-11 s METAL, CHIP 2.26K 0.5% 1/10W

PR-158 BOARD

OLD) C2 1-162-908-11 s CERAMIC 3PF 0.25PF 50V
 112) C2 1-162-910-11 s CERAMIC 5PF 0.25PF 50V
 OLD) C50 1-162-908-11 s CERAMIC 3PF 0.25PF 50V
 112) C50 1-162-910-11 s CERAMIC 5PF 0.25PF 50V
 OLD) C127 1-102-074-00 s CERAMIC 0.001uF 10% 50V
 203) C127 1-162-964-11 s CERAMIC CHIP 0.001uF 10% 50V

OLD) C128 NOT IN USE.
 203) C128 1-162-927-11 s CERAMIC, CHIP 100PF 5% 50V
 OLD) Q56 8-729-117-32 s TRANSISTOR 2SC4177
 203) Q56 8-729-427-83 s TRANSISTOR XP6501
 OLD) Q64 8-729-117-16 s TRANSISTOR 2SA1611-M6
 203) Q64 8-729-427-83 s TRANSISTOR XP6501

OLD) Q87 NOT IN USE.
 203) Q87 8-729-117-32 s TRANSISTOR 2SC4177
 OLD) Q89 NOT IN USE.
 203) Q89 8-729-117-32 s TRANSISTOR 2SC4177
 OLD) Q90 NOT IN USE.
 203) Q90 8-729-117-32 s TRANSISTOR 2SC4177

OLD) R136 NOT IN USE.
 203) R136 1-218-700-11 s METAL 2.2K 0.50% 1/16W
 OLD) R137 1-216-835-11 s METAL, CHIP 15K 5% 1/16W
 203) R137 1-218-253-11 s METAL, CHIP 2.32K 0.5% 1/10W
 OLD) R138 1-218-716-11 s METAL 10K 0.50% 1/16W
 203) R138 1-218-255-11 s METAL, CHIP 2.67K 0.5% 1/10W

OLD) R139 1-218-716-11 s METAL 10K 0.50% 1/16W
 203) R139 1-218-700-11 s METAL 2.2K 0.50% 1/16W
 OLD) R143 1-218-697-11 s METAL 1.6K 0.50% 1/16W
 203) R143 DELETED.
 OLD) R145 1-218-272-11 s METAL 5.1K 0.50% 1/16W
 203) R145 DELETED.

OLD) R146 1-218-706-11 s METAL 3.9K 0.50% 1/16W
 203) R146 DELETED.
 OLD) R147 1-218-704-11 s METAL 3.3K 0.50% 1/16W
 203) R147 DELETED.
 OLD) R148 1-218-706-11 s METAL 3.9K 0.50% 1/16W
 203) R148 DELETED.

OLD) R149 1-218-707-11 s METAL 4.3K 0.50% 1/16W
 203) R149 DELETED.
 OLD) R150 1-218-706-11 s METAL 3.9K 0.50% 1/16W
 203) R150 DELETED.
 OLD) R171 NOT IN USE.
 203) R171 1-218-256-11 s METAL, CHIP 3.32K 0.5% 1/10W

OLD) R197 1-218-271-11 s METAL 2K 0.50% 1/16W
 203) R197 1-216-826-11 s METAL, CHIP 2.7K 5% 1/16W
 OLD) R199 1-216-829-11 s METAL, CHIP 4.7K 5% 1/16W
 203) R199 1-216-824-11 s METAL, CHIP 1.8K 5% 1/16W
 OLD) R212 1-216-829-11 s METAL, CHIP 4.7K 5% 1/16W
 203) R212 DELETED.

OLD) R244 1-216-827-11 s METAL, CHIP 3.3K 5% 1/16W
 203) R244 1-216-821-11 s METAL, CHIP 1K 5% 1/16W
 OLD) R282 NOT IN USE.
 203) R282 1-216-827-11 s METAL, CHIP 3.3K 5% 1/16W
 OLD) R283 NOT IN USE.
 203) R283 1-216-821-11 s METAL, CHIP 1K 5% 1/16W

OLD) R284 NOT IN USE.
 203) R284 1-216-821-11 s METAL, CHIP 1K 5% 1/16W
 OLD) R285 NOT IN USE.
 203) R285 1-216-823-11 s METAL, CHIP 1.5K 5% 1/16W
 OLD) R286 NOT IN USE.
 203) R286 1-216-829-11 s METAL, CHIP 4.7K 5% 1/16W

OLD) R287 NOT IN USE.
 203) R287 1-216-822-11 s METAL, CHIP 1.2K 5% 1/16W
 OLD) R288 NOT IN USE.
 203) R288 1-216-822-11 s METAL, CHIP 1.2K 5% 1/16W
 OLD) R289 NOT IN USE.
 203) R289 1-216-823-11 s METAL, CHIP 1.5K 5% 1/16W

OLD) R290 NOT IN USE.
 203) R290 1-216-829-11 s METAL, CHIP 4.7K 5% 1/16W
 OLD) R291 NOT IN USE.
 203) R291 1-216-826-11 s METAL, CHIP 2.7K 5% 1/16W
 OLD) R292 NOT IN USE.
 203) R292 1-216-827-11 s METAL, CHIP 3.3K 5% 1/16W

OLD) R293 NOT IN USE.
 203) R293 1-249-441-11 s CARBON, 100K 5% 1/4W
 207) R293 1-216-845-11 s METAL, CHIP 100K 5% 1/16W
 OLD) R294 NOT IN USE.
 207) R294 1-216-828-11 s METAL, CHIP 3.9K 5% 1/16W

OLD) R295 NOT IN USE.
 207) R295 1-216-828-11 s METAL, CHIP 3.9K 5% 1/16W
 OLD) R296 NOT IN USE.
 207) R296 1-216-828-11 s METAL, CHIP 3.9K 5% 1/16W
 OLD) R300 NOT IN USE.
 204) R300 1-216-063-00 s METAL, CHIP 3.9K 5% 1/10W
 207) R300 NOT IN USE.
 OLD) R301 NOT IN USE.
 204) R301 1-216-063-00 s METAL, CHIP 3.9K 5% 1/10W
 207) R301 NOT IN USE.

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OLD) R302 NOT IN USE.
 204) R302 1-216-063-00 s METAL, CHIP 3.9K 5% 1/10W
 207) R302 NOT IN USE.

PR-158P BOARD

OLD) C2 1-162-908-11 s CERAMIC 3PF 0.25PF 50V
 203) C2 1-162-910-11 s CERAMIC 5PF 0.25PF 50V
 OLD) C50 1-162-908-11 s CERAMIC 3PF 0.25PF 50V
 203) C50 1-162-910-11 s CERAMIC 5PF 0.25PF 50V
 OLD) C127 1-102-074-00 s CERAMIC 0.001uF 10% 50V
 203) C127 1-162-964-11 s CERAMIC, CHIP 0.001uF 10% 50V

OLD) C128 NOT IN USE.
 203) C128 1-162-927-11 s CERAMIC, CHIP 100PF 5% 50V
 OLD) Q56 8-729-117-32 s TRANSISTOR 2SC4177
 203) Q56 8-729-427-83 s TRANSISTOR XP6501
 OLD) Q64 8-729-117-16 s TRANSISTOR 2SA1611-M6
 203) Q64 8-729-427-83 s TRANSISTOR XP6501

OLD) Q87 NOT IN USE.
 203) Q87 8-729-117-32 s TRANSISTOR 2SC4177
 OLD) Q89 NOT IN USE.
 203) Q89 8-729-117-32 s TRANSISTOR 2SC4177
 OLD) Q90 NOT IN USE.
 203) Q90 8-729-117-32 s TRANSISTOR 2SC4177

OLD) R136 1-216-832-11 s METAL, CHIP 8.2K 5% 1/16W
 203) R136 1-218-700-11 s METAL 2.2K 0.50% 1/16W
 OLD) R137 NOT IN USE.
 203) R137 1-218-259-11 s METAL, CHIP 13.7K 0.5% 1/10W
 OLD) R138 1-218-716-11 s METAL 10K 0.50% 1/16W
 203) R138 1-218-254-11 s METAL, CHIP 2.55K 0.5% 1/10W

OLD) R139 1-218-716-11 s METAL 10K 0.50% 1/16W
 203) R139 DELETED.
 OLD) R143 1-218-271-11 s METAL 2K 0.50% 1/16W
 203) R143 DELETED.
 OLD) R144 1-216-832-11 s METAL 8.2K 5% 1/16W
 203) R144 DELETED.

OLD) R145 1-218-704-11 s METAL 3.3K 0.50% 1/16W
 203) R145 DELETED.
 OLD) R146 1-218-706-11 s METAL 3.9K 0.50% 1/16W
 203) R146 DELETED.
 OLD) R147 1-216-834-11 s METAL, CHIP 12K 5% 1/16W
 203) R147 DELETED.

OLD) R148 1-218-298-11 s METAL, CHIP 2.2K 1% 1/16W
 203) R148 DELETED.
 OLD) R149 1-218-708-11 s METAL 4.7K 0.50% 1/16W
 203) R149 DELETED.
 OLD) R150 1-218-706-11 s METAL 3.9K 0.50% 1/16W
 203) R150 DELETED.

OLD) R152 NOT IN USE.
 203) R152 1-218-254-11 s METAL, CHIP 2.55K 0.5% 1/10W
 OLD) R167 NOT IN USE.
 203) R167 1-218-257-11 s METAL, CHIP 4.99K 0.5% 1/10W
 OLD) R172 1-216-826-11 s METAL, CHIP 2.7K 5% 1/16W
 203) R172 1-216-827-11 s METAL, CHIP 3.3K 5% 1/16W

(PR-158P BOARD)

OLD) R173 1-216-830-11 s METAL, CHIP 5.6K 5% 1/16W
 203) R173 1-216-825-11 s METAL, CHIP 2.2K 5% 1/16W
 204) R173 1-216-827-11 s METAL, CHIP 3.3K 5% 1/16W
 OLD) R177 1-216-829-11 s METAL, CHIP 4.7K 5% 1/16W
 203) R177 1-216-825-11 s METAL, CHIP 2.2K 5% 1/16W

OLD) R180 1-216-825-11 s METAL, CHIP 2.2K 5% 1/16W
 204) R180 1-216-829-11 s METAL, CHIP 4.7K 5% 1/16W
 OLD) R197 1-218-271-11 s METAL 2K 0.50% 1/16W
 203) R197 1-216-826-11 s METAL, CHIP 2.7K 5% 1/16W
 OLD) R199 1-216-829-11 s METAL, CHIP 4.7K 5% 1/16W
 203) R199 1-216-824-11 s METAL, CHIP 1.8K 5% 1/16W

OLD) R212 1-216-829-11 s METAL, CHIP 4.7K 5% 1/16W
 203) R212 DELETED.
 OLD) R227 1-216-827-11 s METAL, CHIP 3.3K 5% 1/16W
 203) R227 1-216-831-11 s METAL, CHIP 6.8K 5% 1/16W
 OLD) R244 1-216-825-11 s METAL, CHIP 2.2K 5% 1/16W
 203) R244 1-216-821-11 s METAL, CHIP 1K 5% 1/16W

OLD) R273 1-218-740-11 s METAL 100K 0.50% 1/16W
 203) R273 1-218-700-11 s METAL 2.2K 0.50% 1/16W
 OLD) R282 NOT IN USE.
 203) R282 1-216-827-11 s METAL, CHIP 3.3K 5% 1/16W
 OLD) R283 NOT IN USE.
 203) R283 1-216-821-11 s METAL, CHIP 1K 5% 1/16W

OLD) R284 NOT IN USE.
 203) R284 1-216-821-11 s METAL, CHIP 1K 5% 1/16W
 OLD) R285 NOT IN USE.
 203) R285 1-216-823-11 s METAL, CHIP 1.5K 5% 1/16W
 OLD) R286 NOT IN USE.
 203) R286 1-216-829-11 s METAL, CHIP 4.7K 5% 1/16W

OLD) R287 NOT IN USE.
 203) R287 1-216-823-11 s METAL, CHIP 1.5K 5% 1/16W
 OLD) R288 NOT IN USE.
 203) R288 1-216-823-11 s METAL, CHIP 1.5K 5% 1/16W
 OLD) R289 NOT IN USE.
 203) R289 1-216-823-11 s METAL, CHIP 1.5K 5% 1/16W

OLD) R290 NOT IN USE.
 203) R290 1-216-829-11 s METAL, CHIP 4.7K 5% 1/16W
 OLD) R291 NOT IN USE.
 203) R291 1-216-826-11 s METAL, CHIP 2.7K 5% 1/16W
 OLD) R292 NOT IN USE.

203) R292 1-216-827-11 s METAL, CHIP 3.3K 5% 1/16W
 OLD) R293 NOT IN USE.
 203) R293 1-249-441-11 s CARBON, 100K 5% 1/4W
 207) R293 1-216-845-11 s METAL, CHIP 100K 5% 1/16W
 OLD) R294 NOT IN USE.
 207) R294 1-216-828-11 s METAL, CHIP 3.9K 5% 1/16W

OLD) R295 NOT IN USE.
 207) R295 1-216-828-11 s METAL, CHIP 3.9K 5% 1/16W
 OLD) R296 NOT IN USE.
 207) R296 1-216-828-11 s METAL, CHIP 3.9K 5% 1/16W
 OLD) R300 NOT IN USE.
 204) R300 1-216-063-00 s METAL, CHIP 3.9K 5% 1/10W

207) R300 NOT IN USE.
 OLD) R301 NOT IN USE.
 204) R301 1-216-063-00 s METAL, CHIP 3.9K 5% 1/10W
 207) R301 NOT IN USE.
 OLD) R302 NOT IN USE.
 204) R302 1-216-063-00 s METAL, CHIP 3.9K 5% 1/10W
 207) R302 NOT IN USE.

SG-194/194PBOARD

OLD) C55 1-162-923-11 s CERAMIC, CHIP 47PF 5% 50V
203) C55 DELETED.
OLD) C66 1-162-806-11 s CERAMIC 0.1uF 10% 50V
203) C66 DELETED.
OLD) C67 NOT IN USE.
202) C67 1-164-156-11 s CERAMIC 0.1uF 25V

OLD) R63 1-216-834-11 s METAL, CHIP 12K 5% 1/16W
112) R63 1-218-716-11 s METAL 10K 0.50% 1/16W

SAFETY CHECK-OUT

After correcting the original service problem, perform the following safety checks before releasing the set to the customer:

Check the metal trim, "metallized" knobs, screws, and all other exposed metal parts for AC leakage. Check leakage as described below.

LEAKAGE TEST

The AC leakage from any exposed metal part to earth ground and from all exposed metal parts to any exposed metal part having a return to chassis, must not exceed 0.5mA (500 microampers). Leakage current can be measured by any one of three methods.

1. A commercial leakage tester, such as the Simpson 229 or RCA WT-540A. Follow the manufacturers' instructions to use these instruments.
2. A battery-operated AC milliammeter. The Data Precision 245 digital multimeter is suitable for this job.
3. Measuring the voltage drop across a resistor by means of a VOM or battery-operated AC voltmeter. The "limit" indication is 0.75V so analog meters must have an accurate low-voltage scale. The Simpson 250 and Sanwa SH-63Trd are examples of a passive VOM that is suitable. Nearly all battery operated digital multimeters that have a 2V AC range are suitable. (See Fig. A)

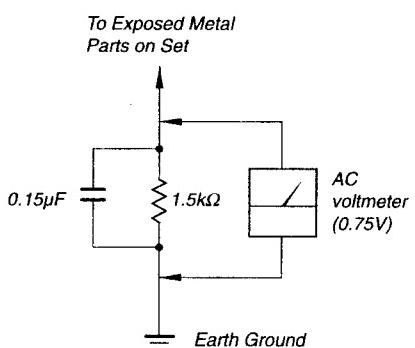


Fig. A. Using an AC voltmeter to check AC leakage.